RICOH

R1500x SERIES

500 mA LDO REGULATOR (Operating Voltage up to 24 V)

NO.EA-151-160701

OUTLINE

The R1500x series are CMOS-based positive voltage regulator (VR) ICs. The R1500xxxxB has features of high input voltage operating, 500mA output current drive, and low supply current.

A DMOS transistor is used for the driver, high voltage operating and low on resistance (0.6Ω at V_{OUT}=10V) device is realized. A standard regulator circuit with a current limit circuit and a thermal shutdown circuit are built in the R1500x series.

As the operating temperature range is from -40°C to 105°C and maximum input voltage is up to 24V, the R1500x series are suitable for the constant voltage source for car accessories.

The regulator output voltage is fixed in the R1500x. Output voltage accuracy is $\pm 2.0\%$ and output voltage range is from 3.0V to 12.0V with a step of 0.1V. The chip enable pin realizes ultra low supply current standby mode.

Since the packages for these ICs are the SOT-89-5 for high density mounting of the ICs on boards, and the TO-252-5-P2.

*) The DMOS (Double Diffused MOS) transistor adopted by R1500x is characterized by a double diffusion structure which comprises a low density n-type (channel) diffused layer and a high density p-type (sources) diffused layer from the edge of the gate electrode. The R1500x series possess outstanding properties of high operating voltage and low on-resistance, which have been achieved by the channel length scaled down to submicron dimensions and decreased thickness of the gate oxide film.

FEATURES

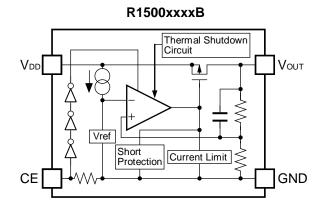
- Input Voltage Range4.0V to 24.0V
- Supply CurrentTyp. 70μA
- Standby CurrentTyp. 0.1µA
- Ripple RejactionTyp. 60dB (Vout=5.0V)
- Temperature-Drift Coefficient of Output VoltageTyp. ±100ppm/°C
- Output Current......Min. 500mA (VIN=Vout+1V)
- Line RegulationTyp. 0.05%/V
- Output Voltage Accuracy......±2%
- - (For other voltages, please refer to MARK INFORMATIONS.)
- Packages.....SOT-89-5, TO-252-5-P2
- Built-in Current Limit Circuit
- Built-in Fold-Back Circuit
- Built-in Thermal Shutdown Circuit
- Operating Temperature range-40°C to 105°C

APPLICATIONS

- Power source for home appliances such as refrigerators, rice cookers, electric water warmers, etc.
- Power source for car audio equipment, car navigation system, ETC system, etc.
- Power source for notebook PCs, digital TVs, cordless phones, and private LAN system, etc.
- Power source for office equipment machines such as copiers, printers, facsimiles, scanners, projectors, etc.

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BLOCK DIAGRAMS



SELECTION GUIDE

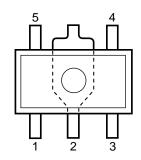
The output voltage, package for the ICs can be selected at the user's request.

Product Name	Package	Quantity per Reel	Pb Free	Halogen Free			
R1500HxxxB-T1-FE	SOT-89-5	1,000 pcs	Yes	Yes			
R1500JxxxB-T1-FE	TO-252-5-P2	3,000 pcs	Yes	Yes			
xxx : The output voltage can be designated in the range from 3.0V(030) to 12.0V(120) in 0.1V steps. (For other voltages, please refer to MARK INFORMATIONS.)							

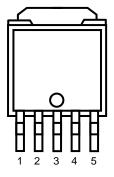
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PIN CONFIGURATIONS

• SOT-89-5



• TO-252-5-P2



PIN DESCRIPTIONS

• SOT-89-5

Pin No.	Symbol	Description
1	Vdd	Input Pin
2	GND*	Ground Pin
3	GND*	Ground Pin
4	CE	Chip Enable Pin ("H" Active)
5	Vout	Output Pin

*) The GND pin must be wired together when it is mounted on board.

• TO-252-5-P2

Pin No.	Symbol	Description
1	Vdd	Input Pin
2	GND*	Ground Pin
3	GND*	Ground Pin
4	CE	Chip Enable Pin ("H" Active)
5	Vout	Output Pin

*) The GND pin must be wired together when it is mounted on board.

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ABSOLUTE MAXIMUM RATINGS

Symbol	Item	Rating	Unit
Vin	Input Voltage	36	V
Vce	Input Voltage (CE Pin)	–0.3 to V $_{\text{IN}} \leq 36$	V
Vout	Output Voltage	–0.3 to V $_{\text{IN}} \leq 36$	V
PD	Power Dissipation (SOT-89-5)*	900	mW
ΓD	Power Dissipation (TO-252-5-P2)*	1900	TTIVV
Topt Operating Temperature Range		-40 to 105	°C
Tstg Storage Temperature Range		-55 to 125	°C

*) For Power Dissipation, please refer to PACKAGE INFORMATION.

ABSOLUTE MAXIMUM RATINGS

Electronic and mechanical stress momentarily exceeded absolute maximum ratings may cause the permanent damages and may degrade the life time and safety for both device and system using the device in the field.

The functional operation at or over these absolute maximum ratings is not assured.

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ELECTRICAL CHARACTERISTICS

• R1500xxxxB

Topt=25°C

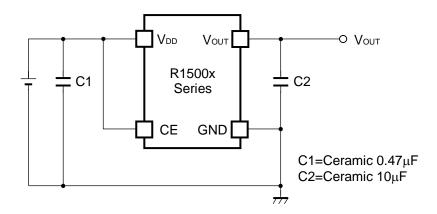
Symbol	Item	Conditions		Min.	Тур.	Max.	Unit	
Vin	Input Voltage				4	,	24	V
lss	Supply Current	VIN=VOUT+1.0	V, Vin=	=Vce		70	130	μA
Istandby	Standby Current	VIN=24V				0.1	1.0	μA
Vout	Output Voltage	VIN=VOUT+1.0	V, Iout	=100mA	×0.98		×1.02	V
ΔV out/ ΔI out	Load Regulation	$V_{\text{IN}}=V_{\text{OUT}}+2.0^{\circ}$ $0.1\text{mA} \leq I_{\text{OUT}}$)mA		25	60	mV
ΔV out/ ΔV in	Line Regulation	$V_{OUT}+1V \leq V_{I}$	N ≦ 24	IV, Iout=10mA		0.05	0.1	%/V
			3.0V	$\leq V$ out < $5.0V$		0.135	0.225	
Vdif	Dropout Voltage	Іоит=200mA	5.0V	$\leq V_{\text{OUT}} < 9.0V$		0.115	0.180	V
			9.0V	$\leq V_{\text{OUT}} \leq 12.0V$	0.095 0.		0.155	
ΔV out/ ΔT opt	Output Voltage Temperature Coefficient				±100		ppm ∕°C	
LIM	Output Current	VIN=VOUT+1.0	V		500			mA
lsc	Short Current Limit	Vout=0V				65		mA
RR	Ripple Rejection	f=1kHz, Ripple 0.5Vp∙	-р,	$V_{\text{OUT}} \leq 6.0 V$		60		dB
		Iout=100mA, Vin=Vout+2V		Vout > 6.0V		50		uВ
VCEH	CE Input Voltage "H"			2.0		Vin	V	
Vcel	CE Input Voltage "L"			0		0.4	V	
Ttsd	Thermal Shutdown Temperature	Junction Temperature		150	170		°C	
T _{TSR}	Thermal Shutdown Released Temperature	Junction Temperature			145		°C	

RECOMMENDED OPERATING CONDITIONS (ELECTRICAL CHARACTERISTICS)

All of electronic equipment should be designed that the mounted semiconductor devices operate within the recommended operating conditions. The semiconductor devices cannot operate normally over the recommended operating conditions, even if when they are used over such conditions by momentary electronic noise or surge. And the semiconductor devices may receive serious damage when they continue to operate over the recommended operating conditions.

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TYPICAL APPLICATION



(External Components) C2: Ceramic 10μF MURATA: GRM32DB31E106K (size: 3225)

TECHNICAL NOTES

When using these ICs, consider the following points:

Phase Compensation

In these ICs, phase compensation is made for securing stable operation even if the load current is varied. For this purpose, use a capacitor C2 with good frequency characteristics and ESR (Equivalent Series Resistance).

If you use a tantalum type capacitor and ESR value of the capacitor is large, output might be unstable. Evaluate your circuit with considering frequency characteristics.

Depending on the capacitor size, manufacturer, and part number, the bias characteristics and temperature characteristics are different. Evaluate the circuit with actual using capacitors.

PCB Layout

Make V_{DD} and GND lines sufficient. If their impedance is high, noise pickup or unstable operation may result. Connect a capacitor C1 with a capacitance value as much as 0.47μ F or more between V_{DD} and GND pin, and as close as possible to the pins.

Set external components, especially the output capacitor C2, as close as possible to the ICs, and make wiring as short as possible.

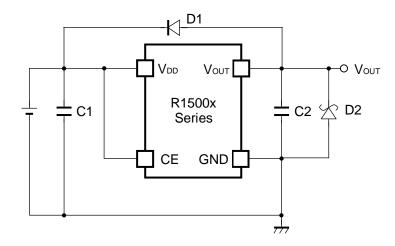
No.2 pin and No.3 pin of SOT-89-5 and TO-252-5-P2 package must be wired to the GND plane when it is mounted on board.

Thermal Shutdown

There is the built-in thermal-shutdown function in R1500x series. It discontinues operation of the IC when the junction temperature becomes over 170°C (Typ.) and IC re-operates when the junction temperature under 145°C. If the temperature increasing keeps the IC repeats ON and OFF operating. The output becomes the pulse condition.

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TYPICAL APPLICATION FOR PREVENTING IC DESTRUCTION



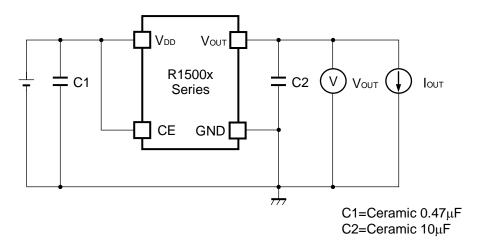
C1: 0.47µF or more	(preventing for unstable operation)
C2: 10µF or more	(preventing for unstable operation)

D1: If V_{OUT} pin could be higher than V_{IN} pin, D1 is necessary. D2: If V_{OUT} pin could be lower than GND pin, SBD is necessary.

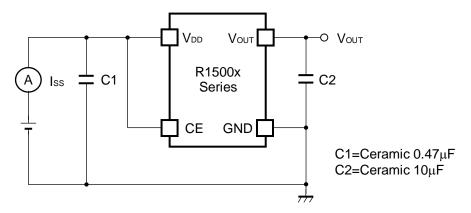
Note: Do not force the voltage to Vout pin.

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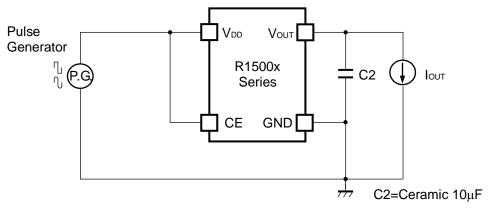
TEST CIRCUITS





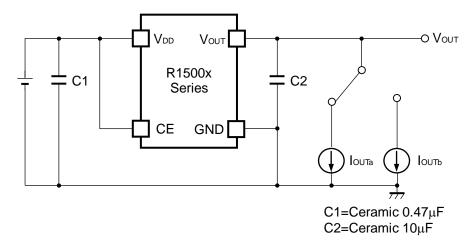


Test Circuit for Supply Current

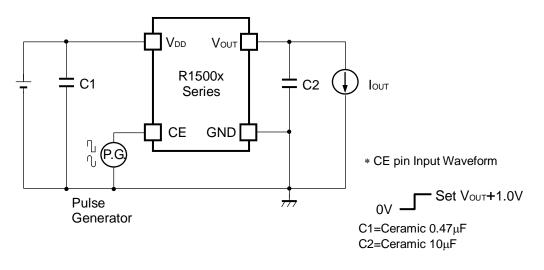


Test Circuit for Ripple Rejection, Input Transient Response

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Test Circuit for Load Transient Response

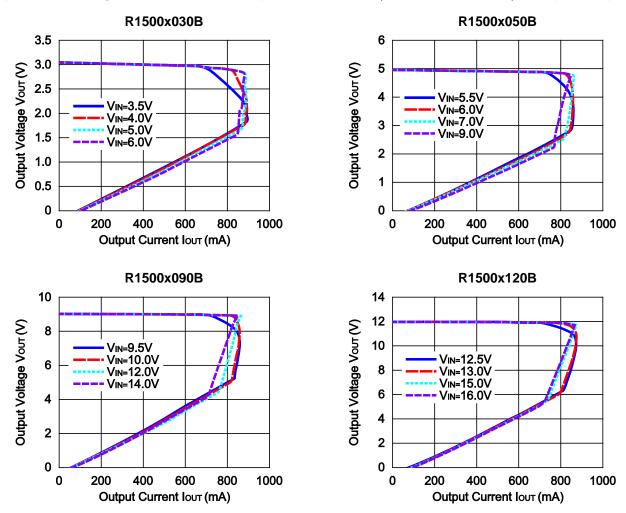


Test Circuit for Turn On Speed with CE pin

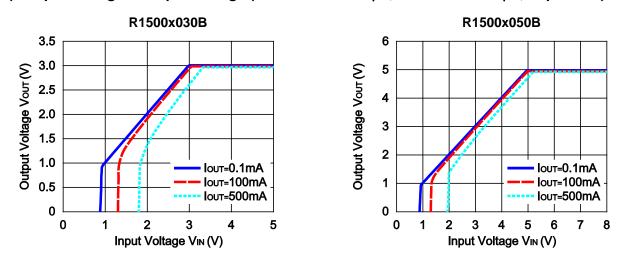
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TYPICAL CHARACTERISTICS

1) Output Voltage vs. Output Current (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Topt=25°C)



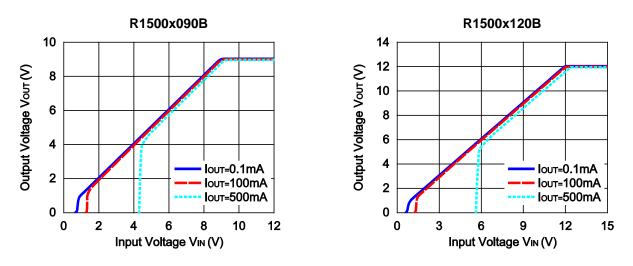
2) Output Voltage vs. Input Voltage (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Topt=25°C)



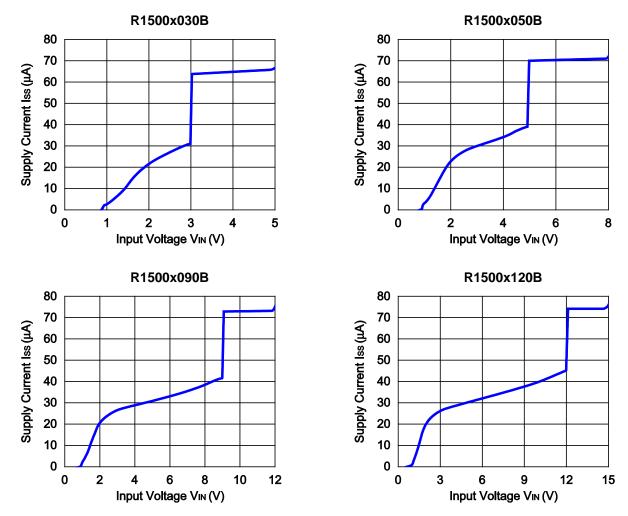
* R1500J (TO-252-5-P2) is the discontinued product as of July, 2016.



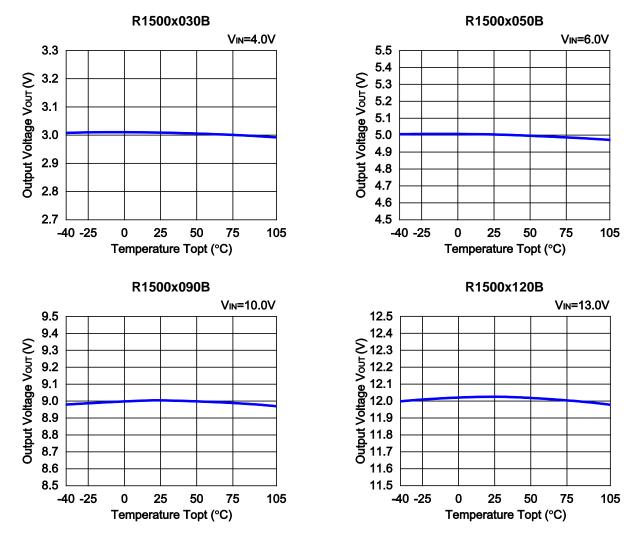
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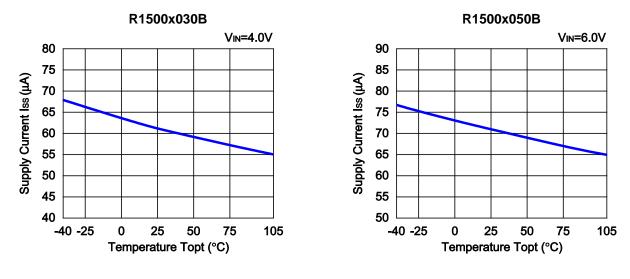


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4) Output Voltage vs. Temperature (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Iout=100mA)

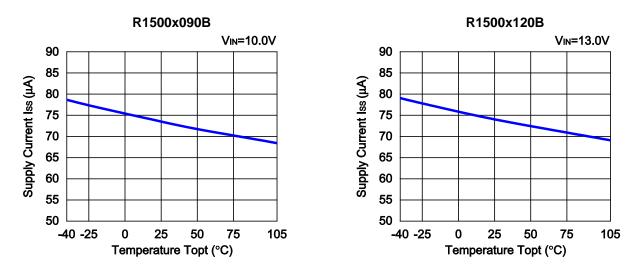
5) Supply Current vs. Temperature (C1=Ceramic 0.47µF, C2=Ceramic 10µF, IouT=0mA)



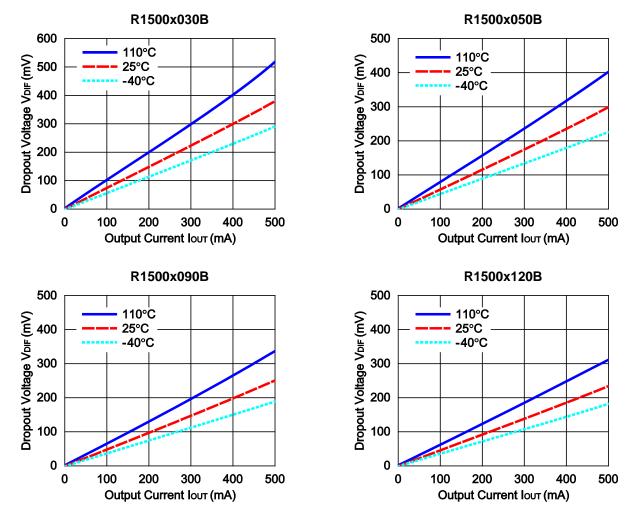
* R1500J (TO-252-5-P2) is the discontinued product as of July, 2016.

R1500x

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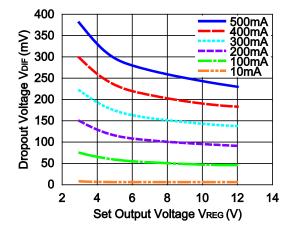


6) Dropout Voltage vs. Output Current (C1=Ceramic 0.47μF, C2=Ceramic 10μF)

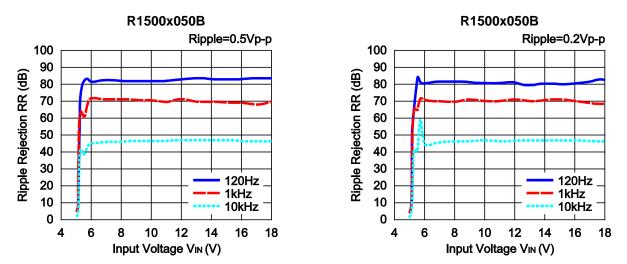


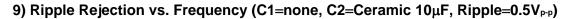
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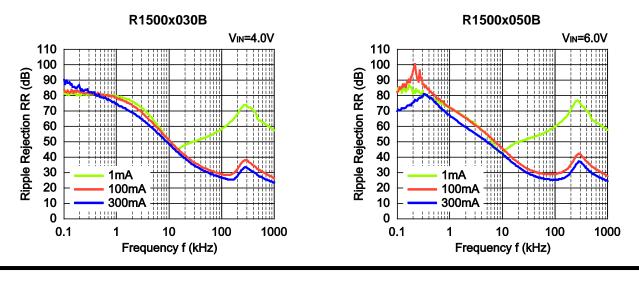
7) Dropout Voltage vs. Set Output Voltage (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Topt=25°C)



8) Ripple Rejection vs. Input Bias Voltage (C1=none, C2=Ceramic 10µF, Iour=100mA, Topt=25°C)



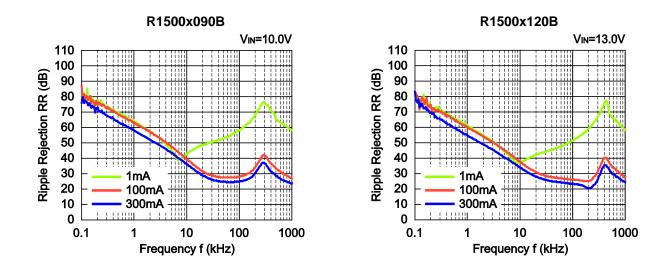




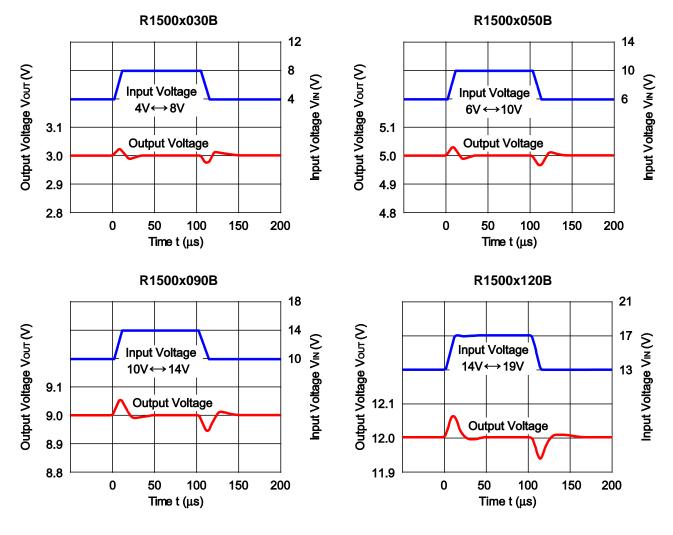
* R1500J (TO-252-5-P2) is the discontinued product as of July, 2016.

R1500x

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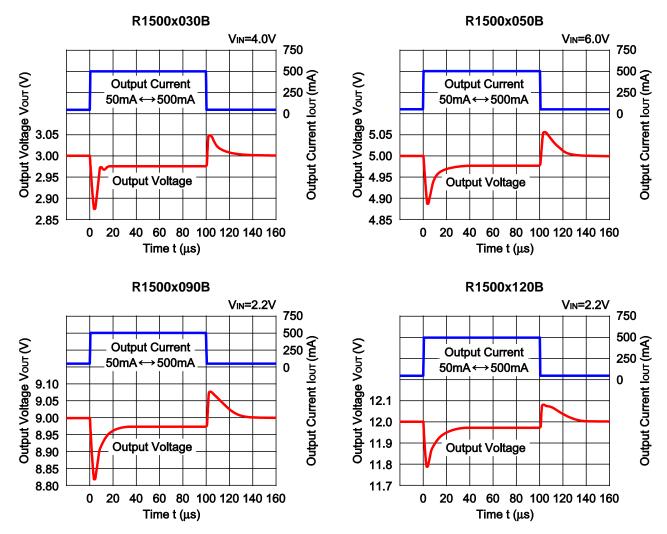


10) Input Transient Response (C1=none, C2=Ceramic 10µF, lout=100mA, tr=tf=10µs, Topt=25°C)



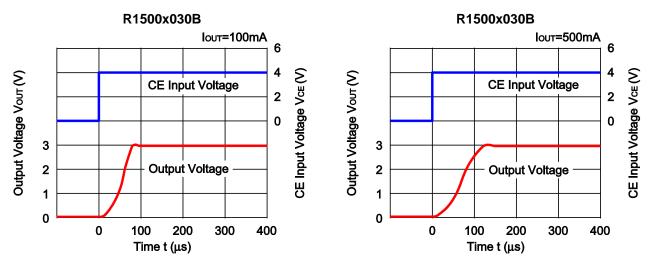
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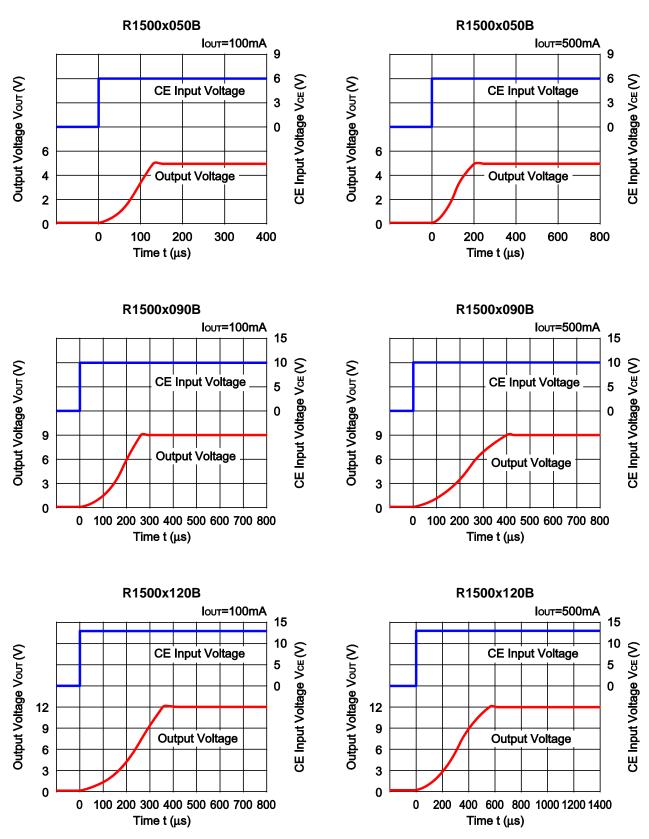


11) Load Transient Response (C1=Ceramic 0.47μF, C2=Ceramic 10μF, tr=tf=0.5μs, Topt=25°C)

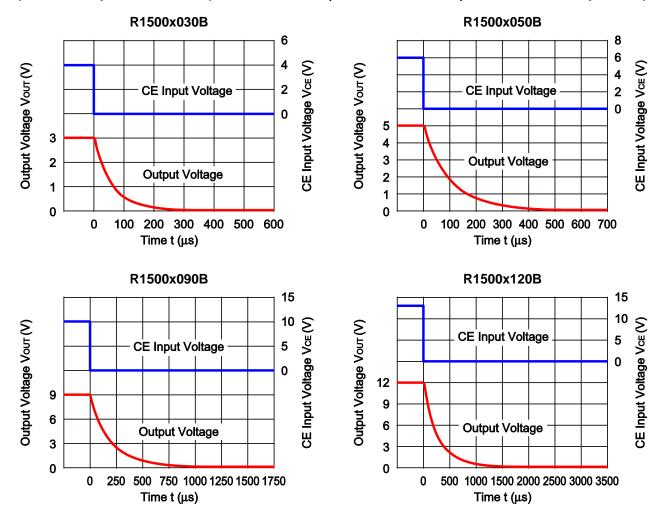
12) Turn On Speed with CE pin (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Topt=25°C)



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13) Turn Off Speed with CE (C1=Ceramic 0.47µF, C2=Ceramic 10µF, Iout=500mA, Topt=25°C)

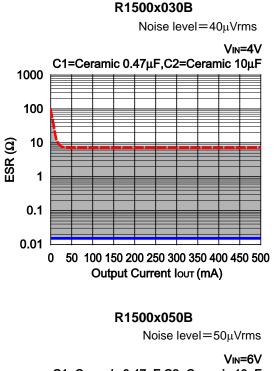
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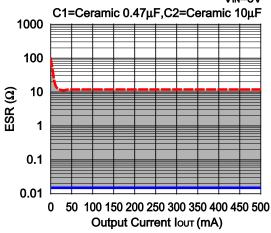
ESR vs. Output Current

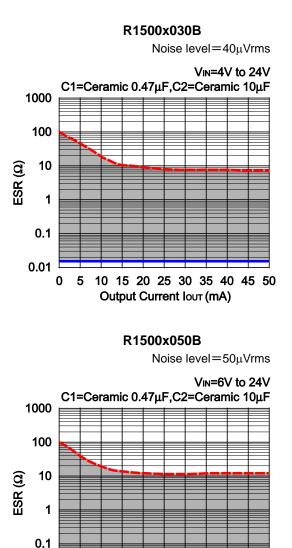
The relations between IouT (Output Current) and ESR of an output capacitor are shown below. The conditions when the white noise level is under the specified certain level are marked as the hatched area in the graph.

Measurement conditions

 $\label{eq:Vour} \begin{array}{ll} \mbox{Input Voltage} & : V_{\mbox{Out}} + 1V \\ \mbox{Frequency Band} : \ 10Hz \ to \ 1MHz \\ \mbox{Temperature} & : -40^{\circ}C \ to \ 105^{\circ}C \end{array}$







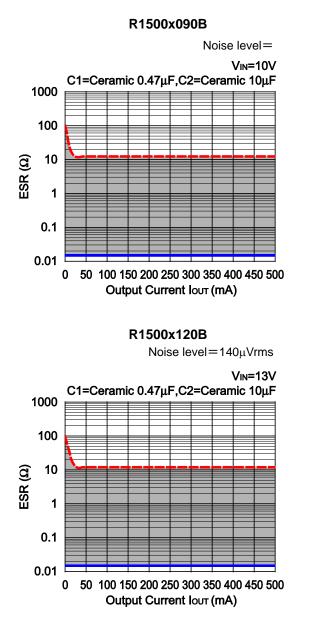
10 15 20 25 30 35 40 45 50

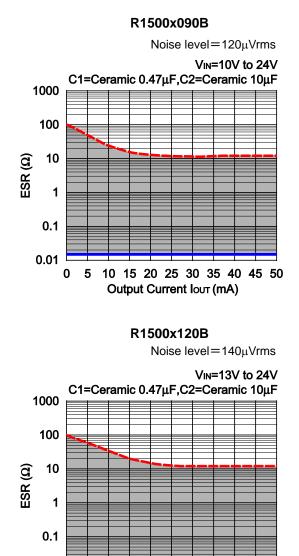
Output Current lout (mA)

0.01

0 5

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0.01 0 5 10 15 20 25 30 35 40 45 50 Output Current lout (mA)

RICOH

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PACKAGE INFORMATION

Power Dissipation (SOT-89-5)

Power Dissipation (P_{D}) depends on conditions of mounting on board. This specification is based on the measurement at the condition below:

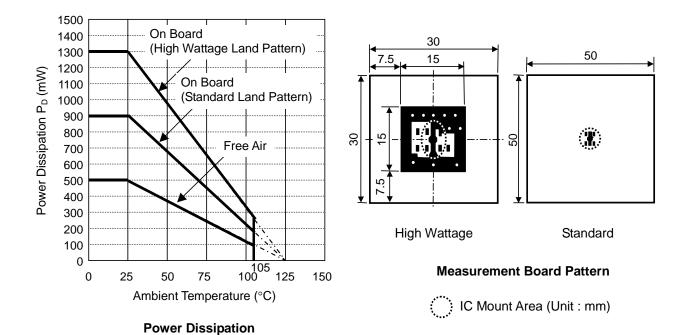
	High Wattage Land Pattern	Standard Land Pattern				
Environment	Mounting on Board (Wind velocity=0m/s)	Mounting on Board (Wind velocity=0m/s)				
Board Material	Glass cloth epoxy plastic (Double sided)	Glass cloth epoxy plastic (Double sided)				
Board Dimensions	30 mm \times 30 mm \times 1.6 mm	50 mm \times 50 mm \times 1.6 mm				
Copper Ratio	Top side : Approx. 20% , Back side : Approx. 100%	Top side : Approx. 10% , Back side : Approx. 100%				
Through-hole	ϕ 0.85mm × 10pcs	-				

Measurement Conditions

Measurement Result

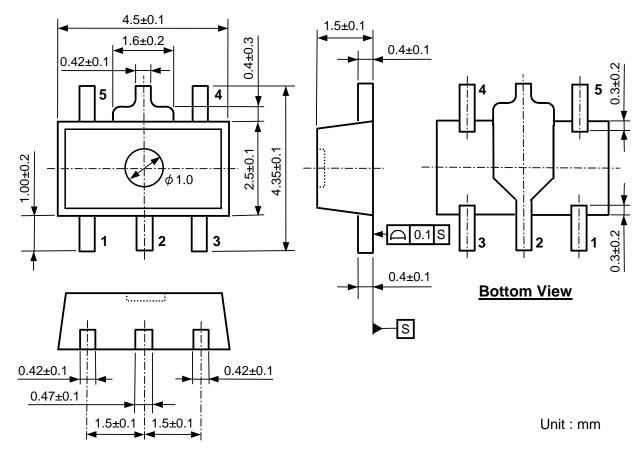
(Ta=25°C, Tjmax=125°C)

Modouronnont rtooutt		(14	=200, rjmax=1200)
	High Wattage Land Pattern	Standard Land Pattern	Free Air
Power Dissipation	1300mW	900mW	500mW
Thermal Resistance	77°C/W	111°C/W	200°C/W



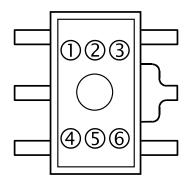
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Package Dimensions (SOT-89-5)



Mark Specifications (SOT-89-5)

1234	: Product Code	Refer to the mark list table.
56	: Lot No	Alphanumeric serial number.



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Vset 9.0V 9.1V 9.2V 9.3V 9.4V 9.5V 9.6V 9.7V 9.8V 9.9V

10.0V 10.1V 10.2V 10.3V 10.4V 10.5V 10.6V 10.7V 10.8V 10.9V

11.0V 11.1V 11.2V 11.3V 11.4V 11.5V 11.6V 11.7V 11.8V 11.9V

12.0V

R1500H Series marking list table PKG : SOT-89-5

Product Name D/2/3/6 Vset Product Name D/2/3/6 Vset Product Name D/2/3/6 Product Name D/2/3/6 <th< th=""><th></th><th></th><th></th><th>-</th><th></th><th></th><th></th><th></th><th></th><th></th></th<>				-						
R1500H031B R 031 3.1V R1500H061B R 061 6.1V R1500H091B R 091 R1500H032B R 032 3.2V R1500H062B R 062 6.2V R1500H092B R 092 R1500H033B R 033 3.3V R1500H063B R 063 6.3V R1500H093B R 035 3.5V R1500H036B R 036 3.6V R1500H066B R 0667 6.7V R1500H096B R 097 R1500H037B R 037 3.7V R1500H066B R 0667 6.7V R1500H096B R 097 R1500H037B R 037 3.7V R1500H066B R 0667 6.7V R1500H096B R 097 R1500H037B R 033 3.9V R1500H067B R 067 7.7V R1500H097B R 097 R1500H097B R 097 R1500H043B R 044 4.4V R1500H073B R 073 7.3V R1500H103B R 103 R1500H044B R 044 4.4V R1500H074B R 075 7.5V R1500H103B R 103 R15	Product Name	1234	Vset		Product Name	1234	Vset	Product Name	1234	
R1500H032B R 032 3.2V R1500H062B R 062 6.2V R1500H092B R 092 R1500H033B R 033 3.3V R1500H063B R 063 6.3V R1500H093B R 093 R1500H034B R 035 3.5V R1500H064B R 064 6.4V R1500H094B R 094 R1500H037B R 037 3.7V R1500H066B R 066 6.6V R1500H095B R 095 R1500H039B R 033 3.8V R1500H066B R 066 6.8V R1500H095B R 097 R1500H039B R 033 3.9V R1500H069B R 067 6.7V R1500H095B R 097 R1500H039B R 033 3.9V R1500H069B R 067 6.7V R1500H095B R 097 R1500H043B R 041 4.1V R1500H07B R 071 7.1V R1500H108 R 100 R1500H044B R 044 4.4V R1500H075B R 073 7.3V R1500H104B R 104 R1500H045B R 045 5.5V R1500H07	R1500H030B	R 0 3 0	3.0V		R1500H060B	R060	6.0V	R1500H090B	R 0 9 0	
R1500H033B R 0 3 3 3.3V R1500H063B R 0 6 3 6.3V R1500H093B R 0 9 3 R1500H034B R 0 3 4 3.4V R1500H064B R 0 6 4 6.4V R1500H093B R 0 9 3 R1500H035B R 0 3 6 3.6V R1500H065B R 0 3 5 6.5V R1500H093B R 0 9 3 R1500H037B R 0 3 7 3.7V R1500H066B R 0 6 6 6.6V R1500H097B R 0 9 7 R1500H037B R 0 3 3 3.9V R1500H067B R 0 6 7 6.7V R1500H097B R 0 9 8 R1500H038B R 0 3 3 .9V R1500H070B R 0 7 0 7.0V R1500H098B R 0 9 8 R1500H040B R 0 4 1 4.1V R1500H072B R 0 7 1 7.1V R1500H02B R 1 0 2 R1500H042B R 0 4 2 4.2V R1500H07B R 0 7 1 7.1V R1500H102B R 1 0 2 R1500H046B R 0 4 3 4.3V R1500H07B R 0 7 7 7.2V R1500H102B R 1 0 2 R1500H07B R	R1500H031B	R 0 3 1	3.1V		R1500H061B	R 0 6 1	6.1V	R1500H091B	R 0 9 1	
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R1500H053B R053 5.3V R1500H083B R083 8.3V R1500H113B R113 R1500H054B R054 5.4V R1500H084B R084 8.4V R1500H114B R114 R1500H055B R055 5.5V R1500H085B R085 8.5V R1500H115B R115 R1500H056B R056 5.6V R1500H086B R086 8.6V R1500H116B R116 R1500H057B R057 5.7V R1500H087B R087 8.7V R1500H117B R117 R1500H057B R058 5.8V R1500H087B R087 8.7V R1500H118B R117 R1500H059B R059 5.9V R1500H088B R088 8.8V R1500H119B R119 R1500H059B R059 5.9V R1500H089B R089 8.9V R1500H119B R119	R1500H051B	R 0 5 1	5.1V		R1500H081B	R 0 8 1	8.1V	R1500H111B	R111	
R1500H054B R054 5.4V R1500H084B R084 8.4V R1500H114B R114 R1500H055B R055 5.5V R1500H085B R085 8.5V R1500H114B R115 R1500H056B R056 5.6V R1500H086B R086 8.6V R1500H116B R116 R1500H057B R057 5.7V R1500H087B R087 8.7V R1500H117B R117 R1500H058B R058 5.8V R1500H088B R088 8.8V R1500H118B R118 R1500H059B R059 5.9V R1500H089B R089 8.9V R1500H119B R119 L L L L L L L L L	R1500H052B	R 0 5 2	5.2V		R1500H082B	R 0 8 2	8.2V	R1500H112B	R 1 1 2	
R1500H055B R055 5.5V R1500H085B R085 8.5V R1500H115B R115 R1500H056B R056 5.6V R1500H086B R086 8.6V R1500H116B R116 R1500H057B R057 5.7V R1500H087B R087 8.7V R1500H117B R117 R1500H058B R058 5.8V R1500H088B R088 8.8V R1500H118B R118 R1500H059B R059 5.9V R1500H089B R089 8.9V R1500H119B R119 L L L L L L L L L	R1500H053B	R 0 5 3	5.3V		R1500H083B	R 0 8 3	8.3V	R1500H113B	R113	
R1500H056B R 0 5 6 5.6V R1500H086B R 0 8 6 8.6V R1500H116B R 1 1 6 R1500H057B R 0 5 7 5.7V R1500H087B R 0 8 7 8.7V R1500H117B R 1 1 7 R1500H058B R 0 5 8 5.8V R1500H088B R 0 8 8 8.8V R1500H118B R 1 1 8 R1500H059B R 0 5 9 5.9V R1500H089B R 0 8 9 8.9V R1500H119B R 1 1 9 L L L L L L L L L	R1500H054B	R 0 5 4	5.4V		R1500H084B	R 0 8 4	8.4V	R1500H114B	R 1 1 4	
R1500H057B R057 5.7V R1500H087B R087 8.7V R1500H117B R117 R1500H058B R058 5.8V R1500H088B R088 8.8V R1500H117B R117 R1500H059B R059 5.9V R1500H089B R089 8.9V R1500H119B R119 L L L L L L L L	R1500H055B	R 0 5 5	5.5V		R1500H085B	R 0 8 5	8.5V	R1500H115B	R 1 1 5	
R1500H058B R 0 5 8 5.8V R1500H088B R 0 8 8 8.8V R1500H118B R 1 1 8 R1500H059B R 0 5 9 5.9V R1500H089B R 0 8 9 8.9V R1500H119B R 1 1 9	R1500H056B	R 0 5 6	5.6V		R1500H086B	R 0 8 6	8.6V	R1500H116B	R116	
R1500H059B R 0 5 9 5.9V R1500H089B R 0 8 9 8.9V R1500H119B R 1 1 9	R1500H057B	R 0 5 7	5.7V		R1500H087B	R 0 8 7	8.7V	R1500H117B	R 1 1 7	
	R1500H058B	R 0 5 8	5.8V		R1500H088B	R 0 8 8	8.8V	R1500H118B	R118	
Image: Constraint of the second sec	R1500H059B	R 0 5 9	5.9V		R1500H089B	R 0 8 9	8.9V	R1500H119B	R119	
R1500H120B R120										
								R1500H120B	R 1 2 0	

NO.EA-151-160701

Power Dissipation (TO-252-5-P2)

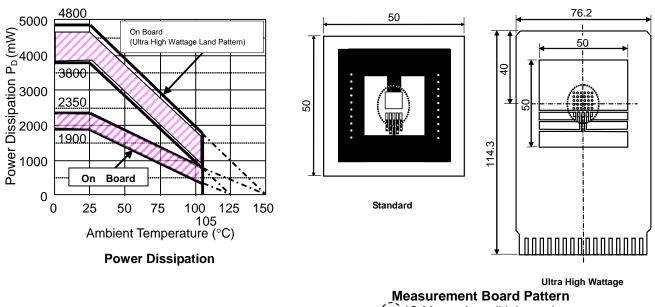
Power Dissipation (P_D) depends on conditions of mounting on board. This specification is based on the measurement at the condition below.

* Measurement conditions

	Standard Land Pattern	Ultra High Wattage Land Pattern		
Environment	Mounting on board (Wind velocity 0m/s)			
Board Material	Glass cloth epoxy plastic (Double layers)	Glass cloth epoxy plastic (Four-layers)		
Board Dimensions	50mm x 50mm x 1.6mm	76.2mm x 114.3mm x 0.8mm		
Copper Ratio	Top side: Approx. 50%, Back side: Approx. 50%	Top, Back side:50mmSquare Approx. 96%, 2nd, 3rd: 50mmSquare Approx. 100%		
Through - hole	φ 0.5mm x 24pcs	φ 0.4mm x 30pcs		

* Measurement Results

* Measurement Results	3	(Ta=25°C, Tjmax=125°C)
	Standard Land Pattern	Ultra High Wattage Land Pattern
Power Dissipation	1900mW	3800mW
Thermal Desistance	θja=(125-25°C)/1.9W= 53°C/W	θja= (125-25°C)/3.8W = 26°C/W
Thermal Resistance	θjc= 17°C/W	θjc= 7°C/W

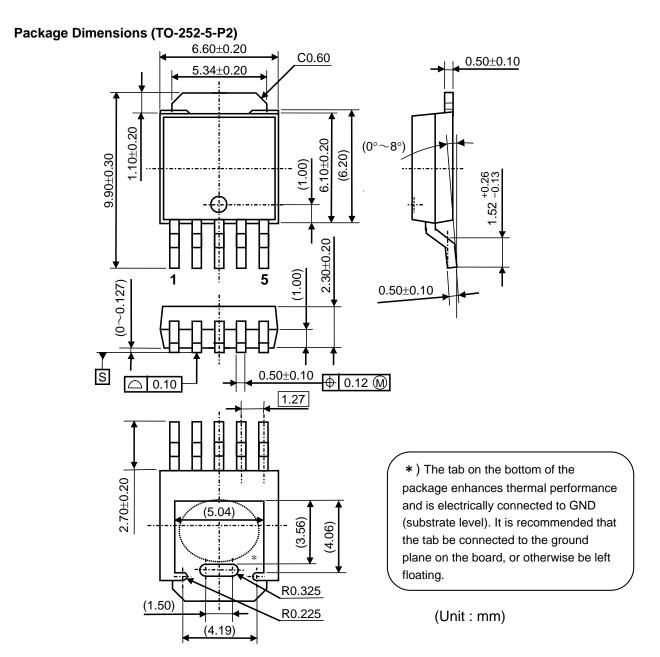


);IC Mount Area (Unit: mm)

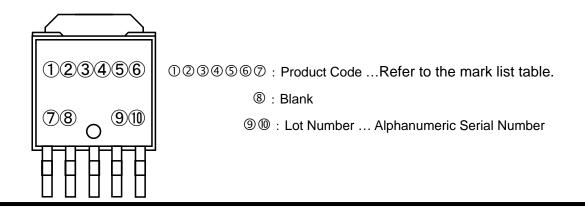
The above graph shows the Power Dissipation of the package based on Tjmax=125°C and Tjmax=150°C. Operating the IC in the shaded area in the graph might have an influence its lifetime. Operating time must be within the time limit described in the table below, in case of operating in the shaded area.

Operating Time	Estimated years (Operating four hours/day)			
13,000 hours	9 years			

NO.EA-151-160701



Mark Specification (TO-252-5-P2)



RICOH

NO.EA-151-160701

R1500J Series marking list table PKG : TO-252-5-P2

Product Name © © © © © © © © Vett Product Name © © © © © © Vett Product Name © © © © © © © Vett R1500.0030B C 1 J 0 3 1 B 3.1V R1500.0060B C 1 J 0 6 2 B 6.2V R1500.0093B C 1 J 0 9 2 B 9.2V R1500.0033B C 1 J 0 3 2 B 3.2V R1500.0062B C 1 J 0 6 2 B 6.2V R1500.0093B C 1 J 0 9 2 B 9.2V R1500.0033B C 1 J 0 3 3 B 3.3V R1500.0062B C 1 J 0 6 2 B 6.2V R1500.0093B C 1 J 0 9 2 B 9.2V R1500.0036B C 1 J 0 3 5 B 3.5V R1500.0066B C 1 J 0 6 5 B 6.4V R1500.0094B C 1 J 0 9 3 B 9.3V R1500.0038B C 1 J 0 3 7 B 3.7V R1500.0068B C 1 J 0 6 5 B 6.4V R1500.0098B C 1 J 0 9 B 9.4V R1500.0038B C 1 J 0 3 8 B 3.8V R1500.0078B C 1 J 0 6 7 B 6.7V R1500.0098B C 1 J 0 9 B 9.4V R1500.0040B C 1 J 0 4 2 B 4.2V R1500.0078B C 1 J 0 7 B 7.2V R1500.0108B C 1 J 1 0 2 B <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>									
R1500J031B C1J031B 3.1V R1500J061B C1J061B 6.1V R1500J032B C1J091B 9.1V R1500J032B C1J032B 3.2V R1500J062B C1J062B 6.2V R1500J032B C1J093B 9.3V R1500J032B C1J033B 3.3V R1500J062B C1J063B 6.3V R1500J093B C1J093B 9.3V R1500J032B C1J033B 3.4V R1500J066B C1J065B 6.5V R1500J093B C1J093B 9.3V R1500J032B C1J033B 3.6V R1500J066B C1J065B 6.5V R1500J093B C1J095B 9.5V R1500J032B C1J033B 3.8V R1500J066B C1J065B 6.7V R1500J093B C1J093B 9.8V R1500J032B C1J033B 3.8V R1500J066B C1J065B 6.7V R1500J093B C1J093B 9.8V R1500J032B C1J033B A.2V R1500J07B C1J070B 7.V R1500J03B C1J003B C1J003B C1J003B C1J102B 1.0.V <t< td=""><td>Product Name</td><td>0234567</td><td>Vset</td><td>Product Name</td><td>0234567</td><td>Vset</td><td>Product Name</td><td>0234567</td><td>Vset</td></t<>	Product Name	0234567	Vset	Product Name	0234567	Vset	Product Name	0234567	Vset
R1500J032B C1J032B 3.2V R1500J062B C1J062B 6.2V R1500J038 C1J092B 9.2V R1500J033B C1J033B 3.3V R1500J063B C1J064B 6.3V R1500J084B C1J093B 9.3V R1500J035B C1J033B 3.5V R1500J065B C1J065B 6.3V R1500J084B C1J094B 9.4V R1500J035B C1J037B 3.7V R1500J065B C1J065B 6.5V R1500J098B C1J097B 9.5V R1500J036B C1J037B 3.7V R1500J066B C1J065B 6.5V R1500J098B C1J097B 9.5V R1500J038B C1J037B 3.7V R1500J066B C1J065B 6.8V R1500J098B C1J097B 9.7V R1500J038B C1J033B 3.8V R1500J068B C1J063B 6.8V R1500J098B C1J093B 9.8V R1500J042B C1J044B 4.4V R1500J07B C1J077B 7.2V R1500J01B C1J102B 10.0V R1500J046B C1J044B 4.4V <t< td=""><td>R1500J030B</td><td>C1J030B</td><td>3.0V</td><td>R1500J060B</td><td>C1J060B</td><td>6.0V</td><td>R1500J090B</td><td>C1J090B</td><td>9.0V</td></t<>	R1500J030B	C1J030B	3.0V	R1500J060B	C1J060B	6.0V	R1500J090B	C1J090B	9.0V
R1500J033B C1J033B 3.3V R1500J063B C1J063B 6.3V R1500J093B C1J093B 9.3V R1500J034B C1J035B 3.5V R1500J064B C1J064B 6.4V R1500J093B C1J093B 9.3V R1500J036B C1J035B 3.5V R1500J066B C1J065B 6.5V R1500J093B C1J097B 9.4V R1500J037B C1J037B 3.7V R1500J066B C1J066B 6.6V R1500J098B C1J097B 9.4V R1500J037B C1J037B 3.8V R1500J066B C1J066B 6.8V R1500J098B C1J097B 9.4V R1500J037B C1J067B C.7V R1500J098B C1J099B 9.9V C1500J042B C1J044B 4.4V R1500J072B C1J077B 7.1V R1500J100B C1J100B 10.0V R1500J042B C1J044B 4.4V R1500J072B C1J077B 7.1V R1500J108C C1J1010B 10.0V R1500J042B C1J044B 4.4V R1500J076B C1J077B 7.5V	R1500J031B	C1J031B	3.1V	R1500J061B	C1J061B	6.1V	R1500J091B	C1J091B	9.1V
R1500J034B C1J034B 3.4V R1500J064B C1J064B 6.4V R1500J094B C1J094B 9.4V R1500J036B C1J035B 3.5V R1500J066B C1J065B 6.5V R1500J097B C1J095B 9.5V R1500J037B C1J037B 3.7V R1500J067B C1J065B 6.6V R1500J097B C1J097B 9.7V R1500J038B C1J037B 3.7V R1500J067B C1J065B 6.8V R1500J098B C1J097B 9.7V R1500J038B C1J037B 3.7V R1500J068B C1J065B 6.8V R1500J098B C1J097B 9.7V R1500J038B C1J039B 3.9V R1500J068B C1J070B 7.0V R1500J098B C1J097B 0.10V R1500J044B C1J042B 4.2V R1500J078B C1J077B 7.2V R1500J038B C1J0104B 10.4V R1500J078B C1J077B 7.3V R1500J038B C1J0104B 10.4V R1500J078B C1J077B 7.2V R1500J108B C1J103B 10.3V	R1500J032B	C 1 J 0 3 2 B	3.2V	R1500J062B	C1J062B	6.2V	R1500J092B	C1J092B	9.2V
R1500J035B C 1 J 0 3 5 B 3.5V R1500J065B C 1 J 0 6 5 B 6.5V R1500J095B C 1 J 0 9 5 B 9.5V R1500J036B C 1 J 0 3 7 B 3.7V R1500J066B C 1 J 0 6 6 B 6.6V R1500J097B C 1 J 0 9 7 B 9.7V R1500J038B C 1 J 0 3 7 B 3.7V R1500J067B C 1 J 0 6 8 B 6.8V R1500J097B C 1 J 0 9 7 B 9.7V R1500J039B C 1 J 0 3 7 B 3.7V R1500J067B C 1 J 0 6 8 B 6.8V R1500J097B C 1 J 0 9 7 B 9.7V R1500J039B C 1 J 0 4 0 B 3.9V R1500J07B C 1 J 0 7 0 B 7.0V R1500J010B C 1 J 0 9 B 9.9V R1500J0408 C 1 J 0 4 1 B 4.1V R1500J072B C 1 J 0 7 1 B 7.1V R1500J010B C 1 J 1 0 1 B 10.0V R1500J048 C 1 J 0 4 4 B 4.4V R1500J078B C 1 J 0 7 4 B 7.2V R1500J102B C 1 J 1 0 2 B 10.2V R1500J046B C 1 J 0 4 6 B 4.5V R1500J078B C 1 J 0 7 7 B 7.7V R1500J108B C	R1500J033B	C1J033B	3.3V	R1500J063B	C1J063B	6.3V	R1500J093B	C1J093B	9.3V
R1500J036B C 1 J 0 3 6 B 3.6V R1500J066B C 1 J 0 6 6 B 6.6V R1500J096B C 1 J 0 9 7 B 9.6V R1500J037B C 1 J 0 3 7 B 3.7V R1500J067B C 1 J 0 6 7 B 6.7V R1500J098B C 1 J 0 9 8 B 9.8V R1500J039B C 1 J 0 3 9 B 3.9V R1500J068B C 1 J 0 6 9 B 6.8V R1500J098B C 1 J 0 9 9 B 9.9V R1500J040B C 1 J 0 4 1 B 4.0V R1500J070B C 1 J 0 7 0 B 7.0V R1500J010B C 1 J 1 0 0 B 1.0.V R1500J042B C 1 J 0 4 2 B 4.2V R1500J072B C 1 J 0 7 2 B 7.2V R1500J101B C 1 J 1 0 2 B 10.2V R1500J042B C 1 J 0 4 2 B 4.2V R1500J072B C 1 J 0 7 2 B 7.2V R1500J102B C 1 J 1 0 2 B 10.2V R1500J046B C 1 J 0 4 2 B 4.2V R1500J072B C 1 J 0 7 7 B 7.2V R1500J102B C 1 J 1 0 2 B 10.2V R1500J047B C 1 J 0 4 4 B 4.4V R1500J078B C 1 J 0 7 7 B 7.2V R1500J108B	R1500J034B	C 1 J 0 3 4 B	3.4V	R1500J064B	C1J064B	6.4V	R1500J094B	C1J094B	9.4V
R1500J037B C1J037B 3.7V R1500J067B C1J067B 6.7V R1500J038B C1J038B 3.8V R1500J067B C1J068B 6.8V R1500J039B C1J039B 3.9V R1500J068B C1J069B 6.9V R1500J040B C1J040B 4.0V R1500J07B C1J070B 7.0V R1500J008B C1J099B 9.9V R1500J040B C1J041B 4.1V R1500J07B C1J071B 7.1V R1500J10B C1J101D 10.1V R1500J042B C1J044B 4.2V R1500J07B C1J073B 7.2V R1500J102B C1J1012B 10.2V R1500J042B C1J044B 4.4V R1500J07B C1J077B 7.2V R1500J102B C1J104B 10.4V R1500J048B C1J044B 4.4V R1500J07B C1J077B 7.2V R1500J102B C1J104B 10.4V R1500J048B C1J047B 4.7V R1500J07B C1J077B 7.2V R1500J102B C1J105B 10.2V R1500J048B C1J047B	R1500J035B	C1J035B	3.5V	R1500J065B	C1J065B	6.5V	R1500J095B	C1J095B	9.5V
R1500J038B C1J038B 3.8V R1500J068B C1J068B 6.8V R1500J098B C1J098B 9.8V R1500J039B C1J040B 4.0V R1500J069B C1J069B 6.9V R1500J098B C1J099B 9.8V R1500J040B C1J041B 4.1V R1500J070B C1J071B 7.1V R1500J010B C1J101B 10.0V R1500J042B C1J042B 4.2V R1500J072B C1J072B 7.2V R1500J010B C1J102B 10.2V R1500J042B C1J043B 4.3V R1500J072B C1J072B 7.2V R1500J010B C1J1002B C1J102B 10.2V R1500J045B C1J044B 4.4V R1500J072B C1J077B 7.3V R1500J103B C1J104B 10.4V R1500J046B C1J047B K170 R1500J077B C1J077B 7.5V R1500J105B C1J107B 10.7V R1500J048B C1J047B K1500J07B C1J077B 7.3V R1500J107B C1J107B 10.7V R1500J0505B C1J0550B S.0V <td>R1500J036B</td> <td>C1J036B</td> <td>3.6V</td> <td>R1500J066B</td> <td>C1J066B</td> <td>6.6V</td> <td>R1500J096B</td> <td>C1J096B</td> <td>9.6V</td>	R1500J036B	C1J036B	3.6V	R1500J066B	C1J066B	6.6V	R1500J096B	C1J096B	9.6V
R1500J039B C1J039B 3.9V R1500J069B C1J069B 6.9V R1500J099B C1J099B C1J099B 9.9V R1500J040B C1J041B 4.0V R1500J070B C1J070B 7.0V R1500J100B C1J101B 10.0V R1500J042B C1J042B 4.2V R1500J073B C1J072B 7.2V R1500J101B C1J102B C1J102B 10.2V R1500J048D C1J044B 4.4V R1500J073B C1J073B 7.3V R1500J102B C1J104B 10.4V R1500J048D C1J044B 4.4V R1500J078B C1J074B 7.4V R1500J102B C1J104B 10.4V R1500J048D C1J044B 4.4V R1500J078B C1J077B 7.7V R1500J108B C1J104B 10.4V R1500J078B C1J077B 7.7V R1500J078B C1J077B 7.7V R1500J107B C1J107B 10.7V R1500J078B C1J077B 7.7V R1500J078B C1J078B R1500J107B C1J107B 1.10V R1500J058D C1J055B 5.0V R1500J088B C1J082B 8.0V R1500J110B C1J110B <td>R1500J037B</td> <td>C1J037B</td> <td>3.7V</td> <td>R1500J067B</td> <td>C1J067B</td> <td>6.7V</td> <td>R1500J097B</td> <td>C1J097B</td> <td>9.7V</td>	R1500J037B	C1J037B	3.7V	R1500J067B	C1J067B	6.7V	R1500J097B	C1J097B	9.7V
R1500J040B C1J040B 4.0V R1500J070B C1J070B 7.0V R1500J100B C1J100B C1J010B C1J010B C1J010B C1J00B 10.0V R1500J041B C1J042B 4.2V R1500J070B C1J072B 7.2V R1500J100B C1J101B 10.1V R1500J042B C1J042B 4.2V R1500J073B C1J072B 7.2V R1500J102B C1J102B C1J102B 10.2V R1500J044B C1J044B 4.4V R1500J073B C1J077B 7.3V R1500J102B C1J104B 10.4V R1500J046B C1J045B 4.5V R1500J076B C1J077B 7.5V R1500J106B C1J106B 10.6V R1500J046B C1J046B 4.6V R1500J077B C1J077B 7.7V R1500J108B C1J106B 10.6V R1500J050B C1J050B 5.0V R1500J078B C1J077B 7.9V R1500J108B C1J110B 10.7V R1500J050B C1J050B 5.0V R1500J078B C1J077B 7.9V R1500J108B C1J110	R1500J038B	C1J038B	3.8V	R1500J068B	C1J068B	6.8V	R1500J098B	C1J098B	9.8V
R1500J041B C1J041B 4.1V R1500J071B C1J071B 7.1V R1500J101B C1J101B 10.1V R1500J042B C1J042B 4.2V R1500J072B C1J072B 7.2V R1500J102B C1J102B 10.2V R1500J044B C1J044B 4.4V R1500J073B C1J073B 7.3V R1500J102B C1J103B 10.3V R1500J046B C1J044B 4.4V R1500J076B C1J077B 7.4V R1500J104B C1J104B 10.4V R1500J046B C1J044B 4.4V R1500J076B C1J077B 7.4V R1500J106B C1J104B 10.4V R1500J046B C1J047B 4.7V R1500J076B C1J077B 7.6V R1500J107B C1J107B 10.7V R1500J048B C1J044B 4.8V R1500J078B C1J077B 7.7V R1500J107B C1J107B 10.7V R1500J050B C1J049B 4.9V R1500J078B C1J079B 7.9V R1500J108B C1J110B 10.9V R1500J052B C1J052B 5.0V R1500J082B C1J082B 8.0V R1500J110B C1J111B 11.1V	R1500J039B	C1J039B	3.9V	R1500J069B	C1J069B	6.9V	R1500J099B	C1J099B	9.9V
R1500J041B C1J041B 4.1V R1500J071B C1J071B 7.1V R1500J101B C1J101B 10.1V R1500J042B C1J042B 4.2V R1500J072B C1J072B 7.2V R1500J102B C1J102B 10.2V R1500J044B C1J044B 4.4V R1500J073B C1J073B 7.3V R1500J102B C1J103B 10.3V R1500J046B C1J044B 4.4V R1500J076B C1J077B 7.4V R1500J104B C1J104B 10.4V R1500J046B C1J044B 4.4V R1500J076B C1J077B 7.4V R1500J106B C1J104B 10.4V R1500J046B C1J047B 4.7V R1500J076B C1J077B 7.6V R1500J107B C1J107B 10.7V R1500J048B C1J044B 4.8V R1500J078B C1J077B 7.7V R1500J107B C1J107B 10.7V R1500J050B C1J049B 4.9V R1500J078B C1J079B 7.9V R1500J108B C1J110B 10.9V R1500J052B C1J052B 5.0V R1500J082B C1J082B 8.0V R1500J110B C1J111B 11.1V									
R1500J042B C1J042B 4.2V R1500J072B C1J072B 7.2V R1500J02B C1J043B C1J043B 10.2V R1500J044B C1J044B 4.4V R1500J072B C1J073B 7.3V R1500J03B C1J044B 10.4V R1500J044B C1J044B 4.4V R1500J072B C1J074B 7.4V R1500J03B C1J104B 10.4V R1500J046B C1J044B 4.6V R1500J07B C1J074B 7.6V R1500J102B C1J104B 10.4V R1500J047B C1J044B 4.6V R1500J07B C1J077B 7.7V R1500J100B C1J107B 10.7V R1500J04B C1J044B 4.8V R1500J07B C1J077B 7.7V R1500J10B C1J107B 10.7V R1500J04B C1J044B 4.8V R1500J07B C1J077B 7.7V R1500J10B C1J103B 10.8V R1500J050B C1J050B 5.0V R1500J07B C1J079B 7.9V R1500J10B C1J110B 11.0V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.0V R1500J11B C1J112B 11.	R1500J040B	C1J040B	4.0V	R1500J070B	C1J070B	7.0V	R1500J100B	C1J100B	10.0V
R1500J043B C1J043B 4.3V R1500J073B C1J073B 7.3V R1500J103B C1J103B C1J103B 10.3V R1500J044B C1J044B 4.4V R1500J073B C1J074B 7.4V R1500J103B C1J104B 10.4V R1500J046B C1J045B 4.6V R1500J076B C1J075B 7.5V R1500J103B C1J105B 10.5V R1500J047B C1J047B 4.7V R1500J076B C1J077B 7.6V R1500J106B C1J107B 10.7V R1500J048B C1J047B 4.8V R1500J078B C1J077B 7.8V R1500J107B C1J107B 10.7V R1500J050B C1J045B 4.8V R1500J078B C1J077B 7.8V R1500J108B C1J109B 10.7V R1500J050B C1J050B 5.0V R1500J080B C1J079B 7.9V R1500J108B C1J110B 10.7V R1500J052B C1J052B 5.0V R1500J080B C1J082B 8.0V R1500J111B C1J110B 11.0V R1500J055B C1J055B 5.3V R1500J086B C1J082B 8.2V R1500J114B C1J112B	R1500J041B	C1J041B	4.1V	R1500J071B	C1J071B	7.1V	R1500J101B	C1J101B	10.1V
R1500J044B C1J044B 4.4V R1500J074B C1J074B 7.4V R1500J104B C1J104B 10.4V R1500J045B C1J045B 4.5V R1500J076B C1J075B 7.5V R1500J106B C1J105B 10.5V R1500J046B C1J047B 4.6V R1500J076B C1J077B 7.6V R1500J106B C1J107B 10.7V R1500J048B C1J047B 4.7V R1500J076B C1J077B 7.7V R1500J107B C1J107B 10.7V R1500J048B C1J049B 4.8V R1500J078B C1J077B 7.7V R1500J108B C1J109B 10.6V R1500J050B C1J049B 4.9V R1500J078B C1J079B 7.9V R1500J108B C1J109B 10.9V R1500J050B C1J055B 5.0V R1500J080B C1J082B 8.0V R1500J110B C1J1110B 11.0V R1500J052B C1J055B 5.3V R1500J082B C1J083B 8.3V R1500J114B C1J112B 11.2V R1500J056B C1J0556B 5.6V <td>R1500J042B</td> <td>C 1 J 0 4 2 B</td> <td>4.2V</td> <td>R1500J072B</td> <td>C1J072B</td> <td>7.2V</td> <td>R1500J102B</td> <td>C1J102B</td> <td>10.2V</td>	R1500J042B	C 1 J 0 4 2 B	4.2V	R1500J072B	C1J072B	7.2V	R1500J102B	C1J102B	10.2V
R1500J045B C1J045B 4.5V R1500J075B C1J075B 7.5V R1500J105B C1J105B C1J105B 10.5V R1500J046B C1J047B 4.7V R1500J076B C1J077B 7.6V R1500J106B C1J105B C1J105B 10.6V R1500J047B C1J047B 4.7V R1500J077B C1J077B 7.7V R1500J107B C1J107B 10.7V R1500J048B C1J049B 4.8V R1500J078B C1J077B 7.7V R1500J107B C1J1010B C1J1010B 10.7V R1500J050B C1J049B 4.9V R1500J079B C1J079B 7.9V R1500J108B C1J109B 10.9V R1500J050B C1J050B 5.0V R1500J080B C1J080B 8.0V R1500J110B C1J110B 11.0V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J055B C1J055B 5.5V R1500J085B C1J083B 8.3V R1500J112B C1J1112B 11.2V R1500J056B C1J055B 5.5V R1500J086B C1J085B 8.5V	R1500J043B	C1J043B	4.3V	R1500J073B	C1J073B	7.3V	R1500J103B	C1J103B	10.3V
R1500J046B C1J046B 4.6V R1500J076B C1J076B 7.6V R1500J106B C1J106B C1J106B 10.6V R1500J047B C1J047B 4.7V R1500J076B C1J077B 7.7V R1500J106B C1J107B C1J107B 10.7V R1500J048B C1J049B 4.8V R1500J077B C1J077B 7.8V R1500J108B C1J109B 10.7V R1500J050B C1J050B 5.0V R1500J079B C1J079B 7.9V R1500J109B C1J1109B 10.9V R1500J050B C1J051B 5.1V R1500J082B C1J082B 8.0V R1500J110B C1J1110B 11.0V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J1112B 11.2V R1500J054B C1J0554B 5.4V R1500J084B C1J083B 8.3V R1500J113B C1J114B 11.4V R1500J056B C1J0557B 5.7V R1500J087B C1J0857B 8.7V R1500J116B C1J114B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117	R1500J044B	C 1 J 0 4 4 B	4.4V	R1500J074B	C1J074B	7.4V	R1500J104B	C1J104B	10.4V
R1500J047B C1J047B 4.7V R1500J077B C1J077B 7.7V R1500J107B C1J107B C1J108B C1J108B C1J108B C1J108B C1J108B C1J108B C1J108B C1J108B C1J107B C1J111B C1J1112B C1J117B C1J117B C1J117B C1J1112B C1J1112B C1J1112B C1J1112B C1J111	R1500J045B	C1J045B	4.5V	R1500J075B	C1J075B	7.5V	R1500J105B	C1J105B	10.5V
R1500J048B C1J048B 4.8V R1500J078B C1J078B 7.8V R1500J108B C1J108B C1J108B 10.8V R1500J049B C1J049B 4.9V R1500J078B C1J079B 7.9V R1500J108B C1J109B 10.9V R1500J050B C1J050B 5.0V R1500J080B C1J080B 8.0V R1500J108B C1J1110B 11.0V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J053B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J055B C1J055B 5.5V R1500J083B C1J083B 8.3V R1500J112B C1J113B 11.3V R1500J055B C1J055B 5.5V R1500J085B C1J085B 8.5V R1500J116B C1J115B 11.5V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J1116B 11.6V R1500J058B C1J057B 5.8V R1500J088B C1J087B 8.7V R1500J117B C1J117B <td>R1500J046B</td> <td>C1J046B</td> <td>4.6V</td> <td>R1500J076B</td> <td>C1J076B</td> <td>7.6V</td> <td>R1500J106B</td> <td>C1J106B</td> <td>10.6V</td>	R1500J046B	C1J046B	4.6V	R1500J076B	C1J076B	7.6V	R1500J106B	C1J106B	10.6V
R1500J049B C1J049B 4.9V R1500J079B C1J079B 7.9V R1500J109B C1J109B 10.9V R1500J050B C1J050B 5.0V R1500J080B C1J080B 8.0V R1500J110B C1J111B 11.0V R1500J052B C1J052B 5.1V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J054B C1J055B 5.3V R1500J082B C1J083B 8.3V R1500J113B C1J111B 11.4V R1500J055B C1J055B 5.5V R1500J085B C1J085B 8.5V R1500J114B C1J111B 11.4V R1500J057B C1J055B 5.5V R1500J085B C1J085B 8.6V R1500J116B C1J115B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J058B C1J058B 5.8V R1500J089B C1J088B 8.8V R1500J118B C1J111B 11.9V	R1500J047B	C1J047B	4.7V	R1500J077B	C1J077B	7.7V	R1500J107B	C1J107B	10.7V
Image: Normal State	R1500J048B	C1J048B	4.8V	R1500J078B	C1J078B	7.8V	R1500J108B	C1J108B	10.8V
R1500J051B C1J051B 5.1V R1500J081B C1J081B 8.1V R1500J111B C1J111B 11.1V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J053B C1J053B 5.3V R1500J083B C1J083B 8.3V R1500J112B C1J112B 11.2V R1500J054B C1J054B 5.4V R1500J084B C1J084B 8.4V R1500J114B C1J114B 11.4V R1500J055B C1J055B 5.5V R1500J084B C1J085B 8.5V R1500J114B C1J114B 11.4V R1500J056B C1J055B 5.6V R1500J085B C1J085B 8.5V R1500J116B C1J115B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.9V R1500J089B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V	R1500J049B	C1J049B	4.9V	R1500J079B	C1J079B	7.9V	R1500J109B	C1J109B	10.9V
R1500J051B C1J051B 5.1V R1500J081B C1J081B 8.1V R1500J111B C1J111B 11.1V R1500J052B C1J052B 5.2V R1500J082B C1J082B 8.2V R1500J112B C1J112B 11.2V R1500J053B C1J053B 5.3V R1500J083B C1J083B 8.3V R1500J112B C1J112B 11.2V R1500J054B C1J054B 5.4V R1500J084B C1J084B 8.4V R1500J114B C1J114B 11.4V R1500J055B C1J055B 5.5V R1500J084B C1J085B 8.5V R1500J114B C1J114B 11.4V R1500J056B C1J055B 5.6V R1500J085B C1J085B 8.5V R1500J116B C1J115B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.9V R1500J089B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V									
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R1500J053B C1J053B 5.3V R1500J083B C1J083B 8.3V R1500J113B C1J113B 11.3V R1500J054B C1J054B 5.4V R1500J084B C1J084B 8.4V R1500J114B C1J114B 11.4V R1500J055B C1J055B 5.5V R1500J085B C1J085B S.5V R1500J085B C1J0114B C1J114B 11.4V R1500J056B C1J056B 5.6V R1500J086B C1J085B 8.5V R1500J116B C1J116B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.8V R1500J088B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V	R1500J051B	C1J051B	5.1V	R1500J081B	C1J081B	8.1V	R1500J111B	C1J111B	11.1V
R1500J054B C1J054B 5.4V R1500J084B C1J084B 8.4V R1500J14B C1J14B 11.4V R1500J055B C1J055B 5.5V R1500J086B C1J085B 8.5V R1500J114B C1J115B 11.5V R1500J056B C1J056B 5.6V R1500J086B C1J086B 8.6V R1500J116B C1J116B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.8V R1500J089B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V L L L L L L L L L	R1500J052B	C1J052B	5.2V	R1500J082B	C1J082B	8.2V	R1500J112B	C1J112B	11.2V
R1500J055B C1J055B 5.5V R1500J085B C1J085B 8.5V R1500J115B C1J115B 11.5V R1500J056B C1J057B 5.6V R1500J086B C1J086B 8.6V R1500J116B C1J116B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.8V R1500J089B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V Image: Comparison of the state of t	R1500J053B	C1J053B	5.3V	R1500J083B	C1J083B	8.3V	R1500J113B	C1J113B	11.3V
R1500J056B C1J056B 5.6V R1500J086B C1J086B 8.6V R1500J116B C1J116B 11.6V R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.8V R1500J089B C1J088B 8.8V R1500J118B C1J118B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V	R1500J054B	C1J054B	5.4V	R1500J084B	C1J084B	8.4V	R1500J114B	C1J114B	11.4V
R1500J057B C1J057B 5.7V R1500J087B C1J087B 8.7V R1500J058B C1J058B 5.8V R1500J088B C1J088B 8.8V R1500J117B C1J117B 11.7V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.8V R1500J119B C1J119B 11.8V R1500J059B C1J059B 5.9V R1500J089B C1J089B 8.9V R1500J119B C1J119B 11.9V	R1500J055B	C1J055B	5.5V	R1500J085B	C1J085B	8.5V	R1500J115B	C1J115B	11.5V
R1500J058B C 1 J 0 5 8 B 5.8V R1500J088B C 1 J 0 8 8 B 8.8V R1500J118B C 1 J 1 1 8 B 11.8V R1500J059B C 1 J 0 5 9 B 5.9V R1500J089B C 1 J 0 8 9 B 8.9V R1500J119B C 1 J 1 1 9 B 11.9V	R1500J056B	C1J056B	5.6V	R1500J086B	C1J086B	8.6V	R1500J116B	C1J116B	11.6V
R1500J059B C 1 J 0 5 9 B 5.9V R1500J089B C 1 J 0 8 9 B 8.9V R1500J119B C 1 J 1 1 9 B 11.9V	R1500J057B	C1J057B	5.7V	R1500J087B	C1J087B	8.7V	R1500J117B	C1J117B	11.7V
	R1500J058B	C1J058B	5.8V	R1500J088B	C1J088B	8.8V	R1500J118B	C1J118B	11.8V
Image: Constraint of the second sec	R1500J059B	C1J059B	5.9V	R1500J089B	C1J089B	8.9V	R1500J119B	C1J119B	11.9V
R1500J120B C1J120B 12.0V									
							R1500J120B	C1J120B	12.0V

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- 8. The X-ray exposure can influence functions and characteristics of the products. Confirm the product functions and characteristics in the evaluation stage.
- 9. WLCSP products should be used in light shielded environments. The light exposure can influence functions and characteristics of the products under operation or storage.
- 10. There can be variation in the marking when different AOI (Automated Optical Inspection) equipment is used. In the case of recognizing the marking characteristic with AOI, please contact Ricoh sales or our distributor before attempting to use AOL
- 11. Please contact Ricoh sales representatives should you have any questions or comments concerning the products or the technical information.



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Ricoh is committed to reducing the environmental loading materials in electrical devices with a view to contributing to the protection of human health and the environment. Ricoh has been providing RoHS compliant products since April 1, 2006 and Halogen-free products since April 1, 2012.

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