APL3552

Adjustable Current Limit Power Distribution Switches

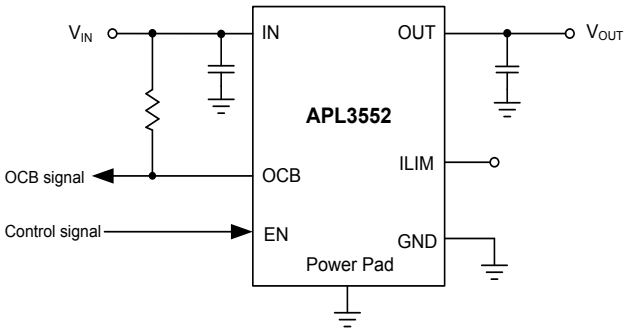
Features

- **62mΩ Power Switch On Resistance**
- **Wide Supply Voltage Range: 2.7V to 5.5V**
- **Adjustable Current Limit Protection**
- **Fast Over current Response: 2us (typ.)**
- **Over-Temperature Protection**
- **Fault Indication Output**
- **Reverse Input-Output Voltage Protection: 25mV (typ.)**
- **Enable Input**
- **Built-in Soft-Start**
- **UL Approved-File No. E328191**
- **UL-CB Scheme IEC/EN62368-1 Certified**
- **TUV IEC/EN62368-1 Certified**

Applications

- **Notebook and Desktop Computers**
- **USB Ports**
- **High-Side Power Protection Switchs**
- **MHL Ports**

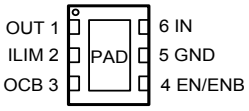
Simplified Application Circuit



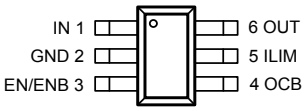
General Description

The APL3552 series of power switches integrate a 62mΩ N-channel MOSFET power switch, an enable input pin, a fault flag and some protection functions into a single package. The protection features include adjustable current limit, reverse current protection, and over temperature protection. APL3552 offer an adjustable current-limit threshold between 150mA and 2.8A (typ.) via an external resistor. The reverse current protection disable the power switch when the output voltage is driven higher than the input to protect devices on the input side of the switch. The OCB output asserts low during over current and reverse current conditions. The over-temperature protection limits the junction temperature below 140°C in case of short circuit or over load conditions.

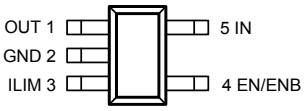
Pin Configuration



TDFN2×2-6
(Top View)



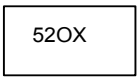
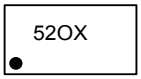
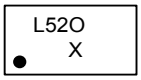
SOT-23-6
(Top View)



SOT-23-5
(Top View)

ANPEC reserves the right to make changes to improve reliability or manufacturability without notice, and advise customers to obtain the latest version of relevant information to verify before placing orders.

Ordering and Marking Information

APL3552 □□□-□□□ Assembly Material Handling Code Temperature Range Package Code EN Function	Package Code C: SOT-23-6 QB: TDFN2×2-6 B: SOT-23-5 Operating Ambient Temperature Range I : -40 to 85°C Handling Code TR : Tape & Reel EN Function A : EN Active High B : EN Active Low Assembly Material G: Halogen and Lead Free Device
APL3552 B: 	X – Date Code O – EN Function Code
APL3552 C: 	X – Date Code O – EN Function Code
APL3552 QB: 	X – Date Code O – EN Function Code

Note: ANPEC lead-free products contain molding compounds/die attach materials and 100% matte tin plate termination finish; which are fully compliant with RoHS. ANPEC lead-free products meet or exceed the lead-free requirements of IPC/JEDEC J-STD-020D for MSL classification at lead-free peak reflow temperature. ANPEC defines "Green" to mean lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

Absolute Maximum Ratings (Note 1)

Symbol	Parameter	Rating	Unit
	Voltage range on IN, OUT, EN or ENB, ILIM, OCB to GND	-0.3 ~ 7	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature	-65 ~ 150	°C
T_{SDR}	Maximum Lead Soldering Temperature, 10 Seconds	260	°C

Note1: Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Thermal Characteristics (Note2)

Symbol	Parameter		Typical Value	Unit
θ_{JA}	Junction-to-Ambient Resistance in Free Air	SOT-23-5	260	°C/W
		SOT-23-6	250	
		TDFN2x2-6	75	

Note 2: θ_{JA} is measured with the component mounted on a high effective thermal conductivity test board in free air.

Recommended Operating Conditions (Note3)

Symbol	Parameter	Range	Unit
V_{IN}	IN Input Voltage	2.7 ~ 5.5	V
I_{OUT}	OUT Output Current	0 ~ 2	A
R_{ILIM}	Current-Limit Threshold Resistor Range	10 ~ 150	kΩ
T_A	Ambient Temperature	-40 ~ 85	°C
T_J	Junction Temperature	-40 ~ 125	°C

Note 3: Refer to the application circuit.

Copyright©ANPEC Electronic Corp.

Electrical Characteristics

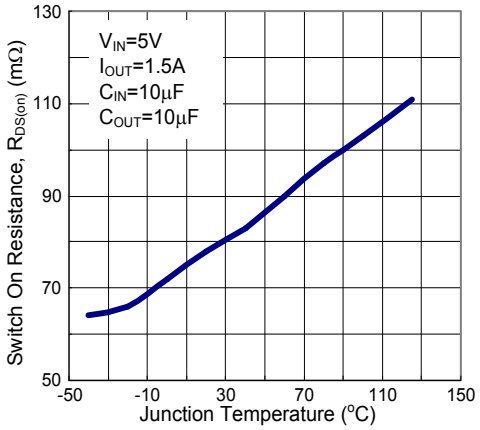
Unless otherwise specified, these specifications apply over V_{IN}=5V, V_{EN}=5V or V_{ENB}=0V and T_A= -40 to 85°C. Typical values are at T_A=25°C.

Symbol	Parameter	Test Conditions		APL3552 Min.	APL3552 Typ.	APL3552 Max.	Unit
SUPPLY CURRENT							
I_{IN}	IN Supply Current	NO load, V_{EN}=0V (For APL3552A)		-	-	1	uA
		NO load, V_{ENB}=3V (For APL3552B)		-	-	3	
		NO load, V_{EN}=5V or V_{ENB}=0V, R_{ILIM}=20kΩ		-	100	150	
		NO load, V_{EN}=5V or V_{ENB}=0V R_{ILIM} Open		-	90	-	
	Leakage Current	OUT=GND, V_{EN}=0V or V_{ENB}=5V		-	-	1	
I_{REV}	Reverse Leakage Current	V_{OUT}=5V, V_{IN}=GND, V_{EN}=0V or V_{ENB}=5V		-	-	1	
POWER SWITCH							
$R_{DS(ON)}$	Power Switch On Resistance	I_{OUT}=1A, T_A= 25°C		–	62	78	mΩ
UNDER-VOLTAGE LOCKOUT(UVLO)							
	VIN UVLO Threshold Voltage	V_{IN} rising, T_A= -40 ~ 85°C		1.7	-	2.65	V
	VIN UVLO Hysteresis			-	0.2	-	
CURRENT LIMIT							
	Maximum Current-limit set point	R_{ILIM}=10k		2.1	2.8	3.2	A
I_{LIM}	Current Limit Threshold	V_{IN}=2.7V to 5.5V, T_A= -40 ~ 85°C	R_{ILIM}=15kΩ	1.4	1.7	2	A
			R_{ILIM}=20kΩ	1.101	1.295	1.489	
			R_{ILIM}=49.9kΩ	0.442	0.52	0.598	
			R_{ILIM}=150kΩ	0.11	0.15	0.2	
T_{IOS}	Response time of over current	V_{IN} = 5V		-	2	-	us
	ILIM voltage source	V_{IN}=2.7V to 5.5V		0.38	0.4	0.42	V
OCB OUTPUT PIN							
V_{OCB}	OCB Output Low Voltage	I_{OCB}=5mA		-	0.2	0.4	V
I_{OCB}	OCB Leakage Current	V_{OCB}=5V		-	-	1	uA
$T_{D(OCB)}$	OCB Deglitch Time	OCB assertion, T_A=-40~85°C		5	12	20	ms
REVERSE VOLTAGE PROTECT							
I_{REV}	Reverse current trip point	Enable reverse current protection		-	100	-	mA
V_{REV}	Reverse voltage comparator trip point	V_{IN} -V_{OUT}, disable reverse current protection		-	25	-	mV
T_{REV}	Time from reverse current condition to MOSFET turn off	V_{IN}=5V		3	5	7	ms
EN or ENB INPUT PIN							
V_{IH}	Input Logic High	V_{IN}=2.7V to 5.5V		1.4	-	-	V
V_{IL}	Input Logic Low	V_{IN}=2.7V to 5.5V		-	-	0.6	
I_{EN}	EN Input Current			-	-	1	uA
$T_{D(ON)}$	Turn on Delay Time			-	80	-	us
$T_{D(OFF)}$	Turn off Delay Time			-	5	-	
T_{SS}	Soft Start Time	No Load, C_{OUT}=1uF, V_{IN}=5V		-	400	1000	
	V_{OUT} Discharge Resistance	V_{EN}=0V or V_{ENB}=5V		-	150	-	Ω
OVERT-TEMPERATURE PROTECTION (OTP)							
T_{OTP}	Over-Temperature Threshold	T_J rising		-	140	-	°C
	Over-Temperature Hysteresis			-	20	-	

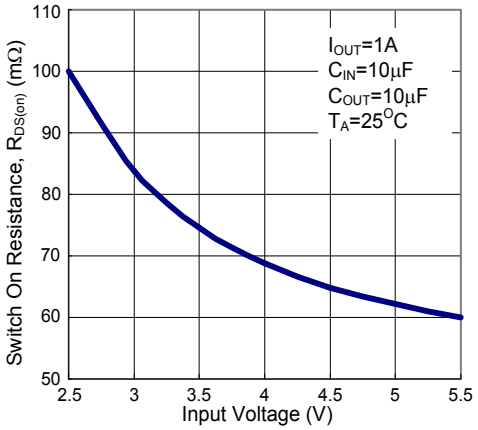
Copyright©ANPEC Electronic Corp.

Typical Operating Characteristics

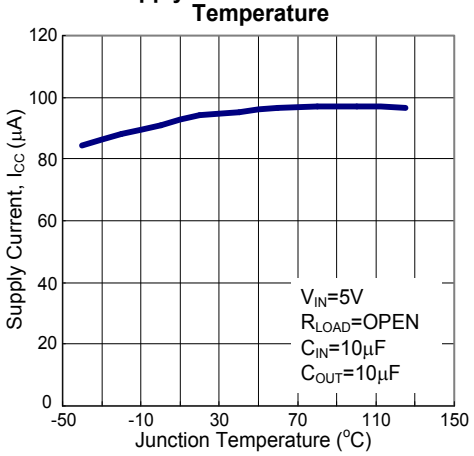
Switch On Resistance vs. Junction Temperature



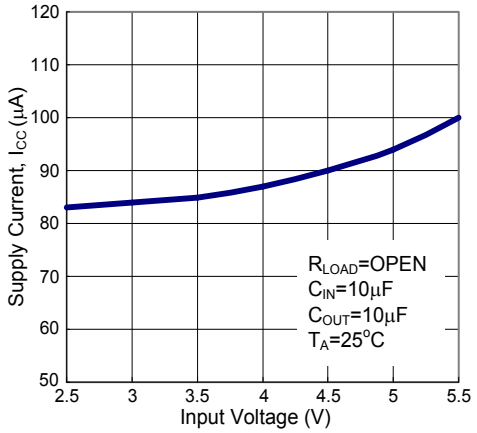
Switch On Resistance vs. Input Voltage



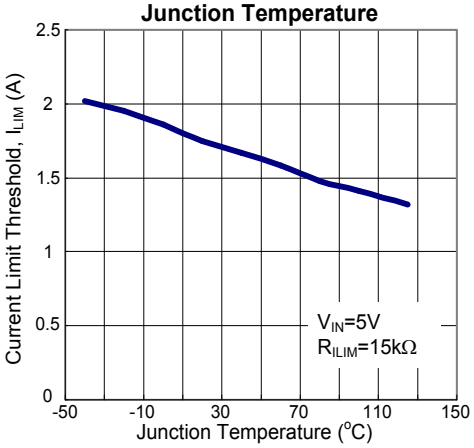
Supply Current vs. Junction Temperature



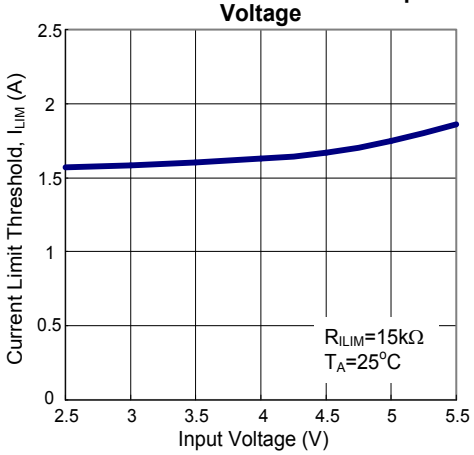
Supply Current vs. Input Voltage



Current Limit Threshold vs. Junction Temperature

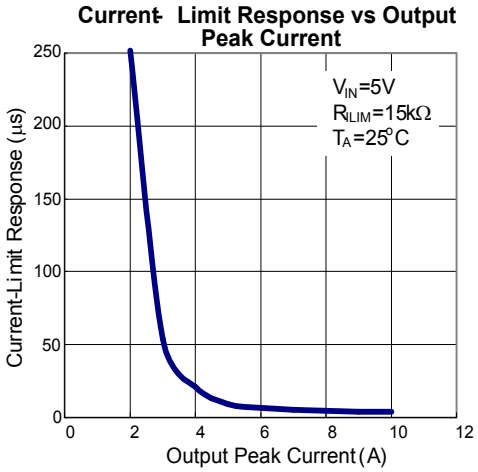


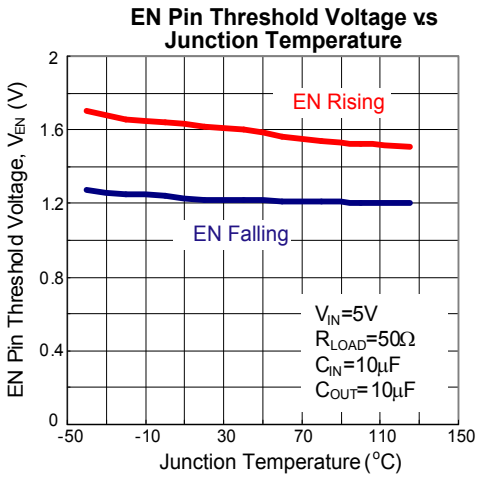
Current Limit Threshold vs. Input Voltage

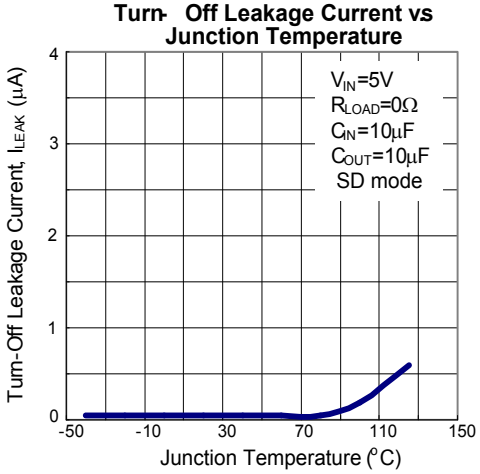


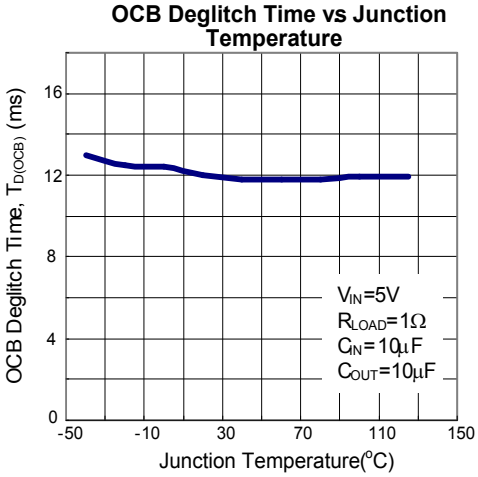
Copyright©ANPEC Electronic Corp.

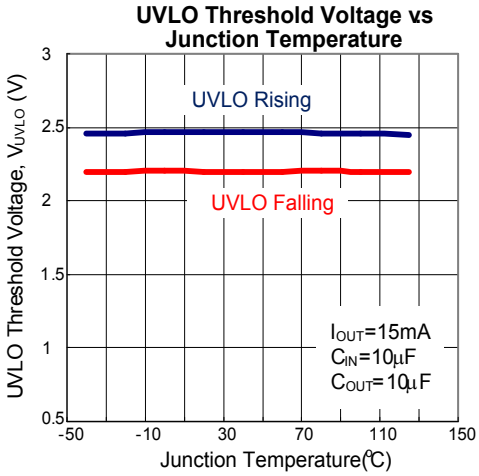
Typical Operating Characteristics(Cont.)





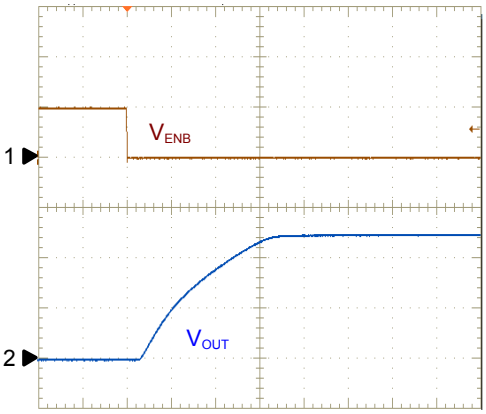






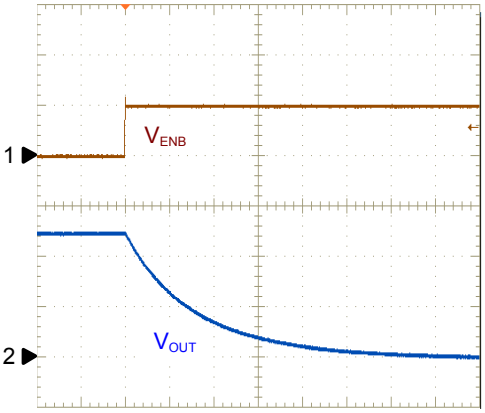
Operating Waveforms

Turn On Response



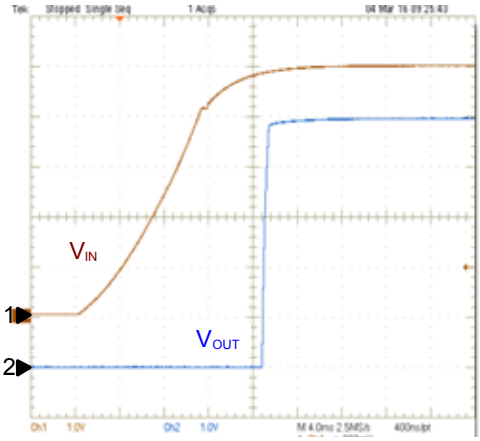
V_{IN}=5V,C_{OUT}=10µF/Electrolytic,
C_{IN}=10µF/Electrolytic,R_{LOAD}=30Ω
CH1:V_{ENB},5V/Div, DC
CH2:V_{OUT},2V/Div, DC
TIME:200µs/Div

Turn Off Response



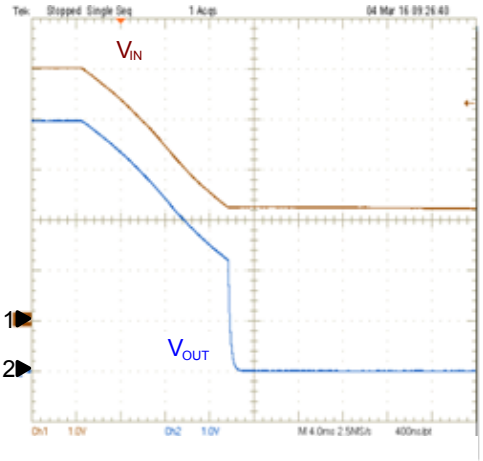
V_{IN}=5V,C_{OUT}=10µF/Electrolytic,
C_{IN}=10µF/Electrolytic,R_{LOAD}=30Ω
CH1:V_{ENB},5V/Div, DC
CH2:V_{OUT},2V/Div, DC
TIME:100µs/Div

UVLO at Rising



V_{IN}=5V,C_{OUT}=10µF/ Electrolytic,
C_{IN}=10µF/ Electrolytic,R_{LOAD}=30Ω
CH1:V_{IN},1V/Div , DC
CH2:V_{OUT},1V/Div , DC
TIME:4ms/Div

UVLO at Falling

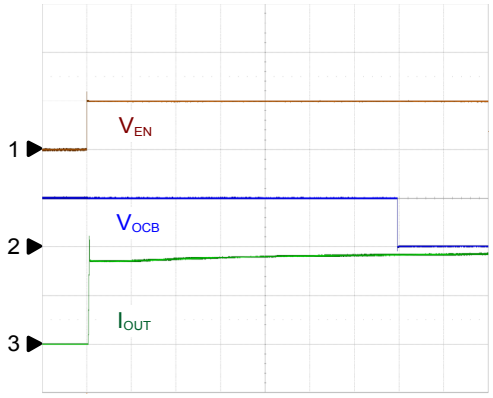


V_{IN}=5V,C_{OUT}=10µF/ Electrolytic,
C_{IN}=10µF/ Electrolytic,R_{LOAD}=30Ω
CH1:V_{IN},1V/Div , DC
CH2:V_{OUT},1V/Div, DC
TIME:4ms/Div

Copyright©ANPEC Electronic Corp.

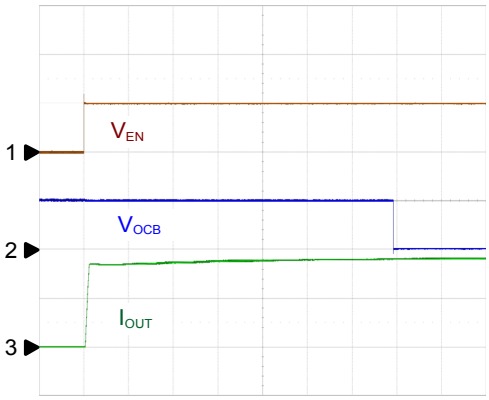
Operating Waveforms (Cont.)

OCB Response During Short Circuit



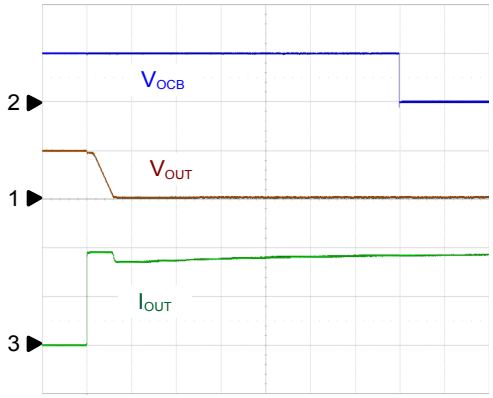
V_{IN}=5V,C_{OUT}=10μF/Electrolytic,
C_{IN}=10μF/Electrolytic,R_{ILIM}=15kΩ,R_{LOAD}=0Ω
CH1:V_{EN},5V/Div, DC
CH2:V_{OCB},5V/Div, DC
CH3:I_{OUT},1A/Div, DC
TIME:2ms/Div

OCB Response During Over Load



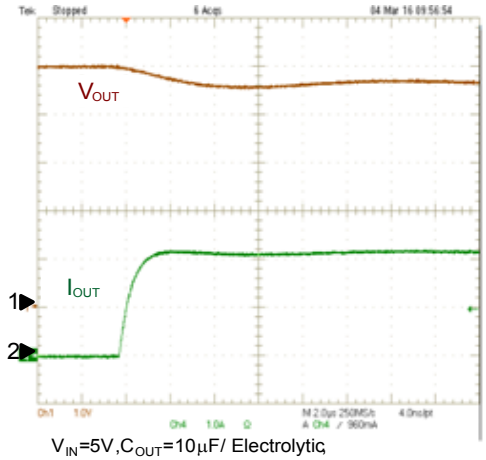
V_{IN}=5V,C_{OUT}=10μF/Electrolytic,
C_{IN}=10μF/Electrolytic,R_{ILIM}=15kΩ,R_{LOAD}=1Ω
CH1:V_{EN},5V/Div, DC
CH2:V_{OCB},5V/Div, DC
CH3:I_{OUT},1A/Div, DC
TIME:2ms/Div

OCB Response with Ramped Load



V_{IN}=5V,C_{OUT}=10μF/Electrolytic,
C_{IN}=10μF/Electrolytic,R_{ILIM}=15kΩ
CH1:V_{OUT},5V/Div, DC
CH2:V_{OCB},5V/Div, DC
CH3:I_{OUT},1A/Div, DC
TIME:2ms/Div

Load- Transient Response

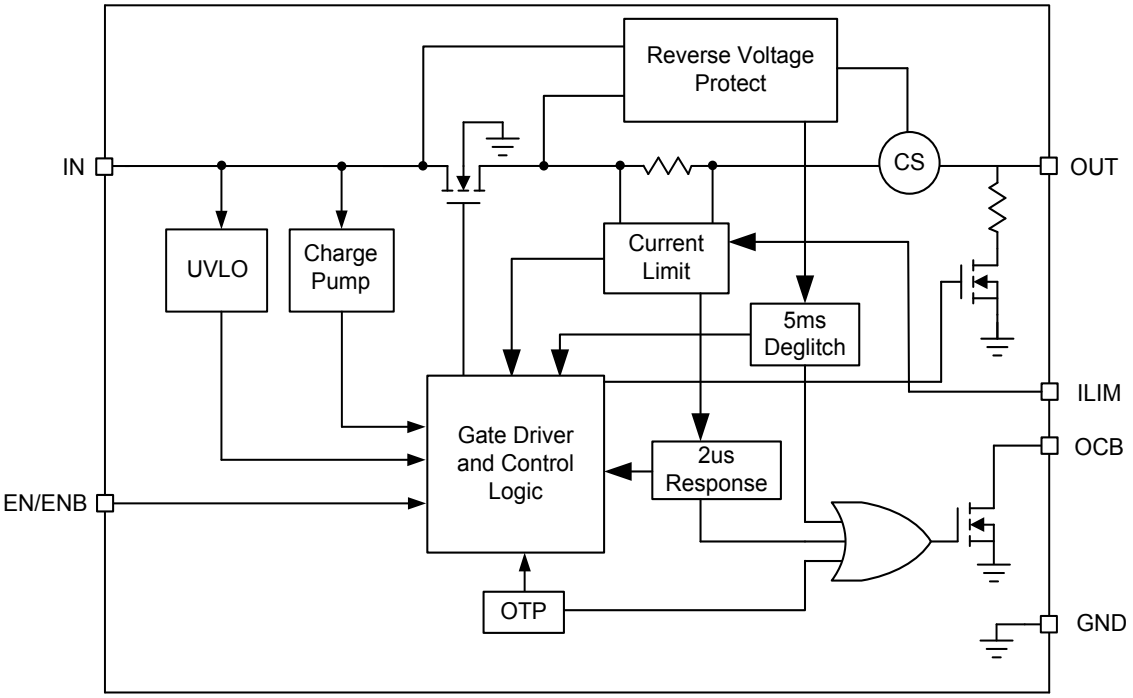


V_{IN}=5V,C_{OUT}=10μF/ Electrolytic,
C_{IN}= 10μF/ Electrolytic,I_{OUT}= 0 to 2A
CH1:V_{OUT},1 V/Div , DC
CH2:I_{OUT}, 1A/ Div, DC
TIME:2 μs/Div

Pin Descriptions

PIN			NAME	FUNCTION
NO.				
TDFN2x2-6	SOT-23-6	SOT-23-5		
1	6	1	VOUT	Output Voltage Pin. The output voltage follows the input voltage. When the device is enable.
2	5	3	ILIM	External resistor used to set current-limit threshold.
3	4	-	OCB	Fault Indication Pin. This pin goes low when a current limit or a reverse voltage condition is detected after a 12ms deglitch time.
4	3	4	EN (52A)	Enable Input. Pulling this pin to high will enable the device and pulling this pin to low will disable device. The EN pin cannot be left floating.
			ENB (52B)	Enable Input. Pulling this pin to high will disable the device and pulling this pin to low will enable device. The ENB pin cannot be left floating.
5	2	2	GND	Ground.
6	1	5	IN	Power Supply Input. Connect this pin to external DC supply.

Block Diagram



Parameter Measurement Information

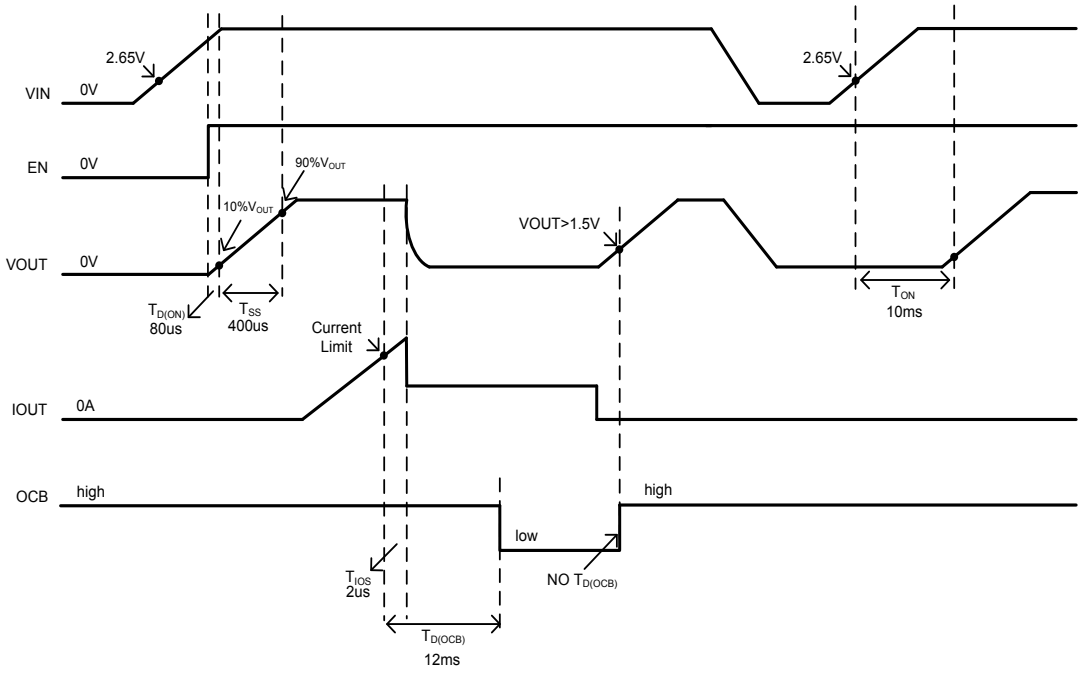


Figure 1. Sequence of Power On & Current Limit & OCB Indicate

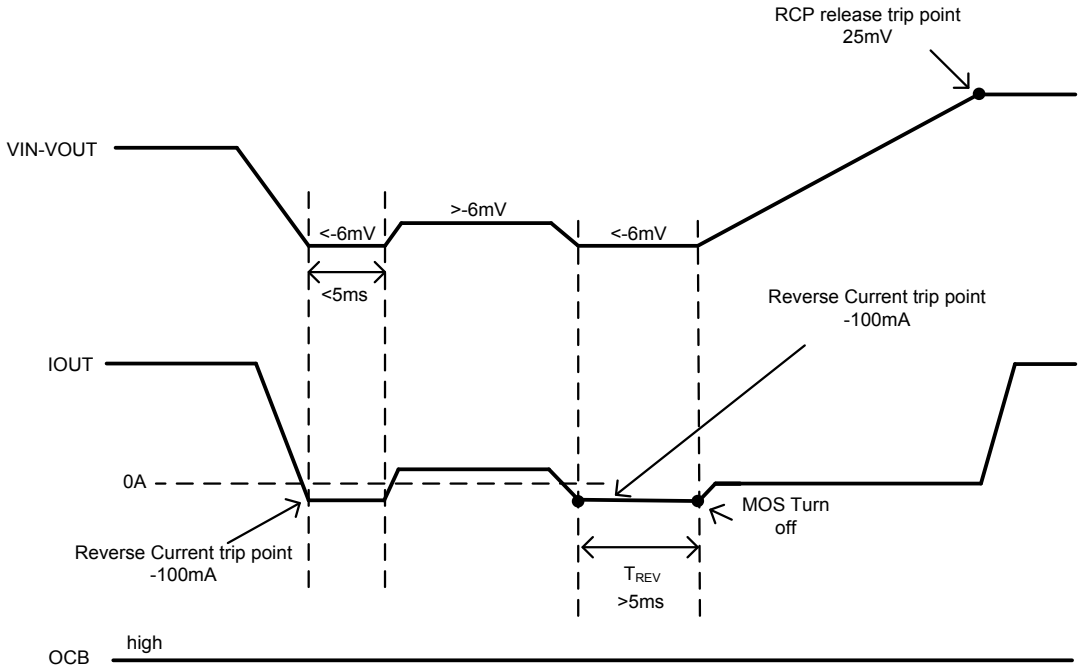
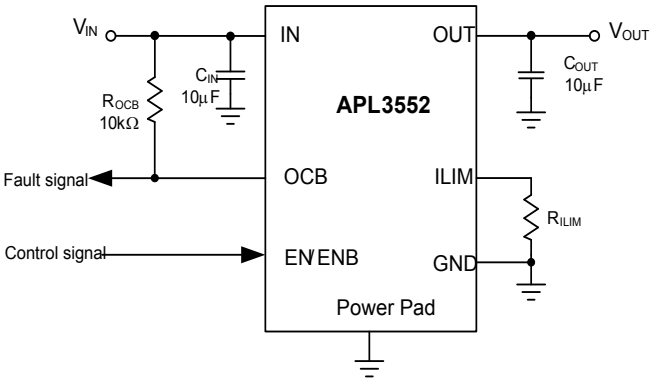


Figure 2. Reverse Current trip point & Recovery

Typical Application Circuit



Function Descriptions

VIN Under-Voltage Lockout (UVLO)

The APL3552 series of power switches have a built-in under-voltage lockout circuit to keep the output shutting off until internal circuitry is operating properly. The UVLO circuit has hysteresis and a de-glitch feature so that it will typically ignore undershoot transients on the input. When input voltage exceeds the UVLO threshold, the output voltage starts a soft-start to reduce the inrush current.

Power Switch

The power switch is an N-channel MOSFET with a low $R_{DS(ON)}$. The internal power MOSFET does not have the body diode. When IC is off, the MOSFET prevents a current flowing from the VOUT back to VIN and VIN to VOUT.

OCB Output

The APL3552 series of power switches provide an opendrain output to indicate that a fault has occurred. When any of current-limit or over-temperature protection occurs for a deglitch time of $t_{D(OCB)}$, the OCB goes low. If fault condition release, OCB will goes high when VOUT > 1.5V (see Figure 1). Since the OCB pin is an open-drain output, connecting a resistor to a pull high voltage is necessary.

Enable/Disable

Pull the ENB above 1.4V or EN below 0.6V will disable the device, and pull ENB pin below 0.6V or EN above 1.4V will enable the device. When the IC is disabled, the supply current is reduced to less than 1uA. The enable input is compatible with both TTL and CMOS logic levels. The EN/ ENB pin cannot be left floating.

Reverse-Voltage Protection

The reverse voltage protection feature turns off the Nchannel MOSFET when a reverse current of (VOUT - VIN)/ $R_{DS(on)}$) over 100mA(typ.) for 5ms (typ) deglitch time(see Figure 2). The APL3552 device allows the N-channel MOSFET immediately turn on once the output voltage goes lower than the input voltage by 25 mV (typ)(see Figure 2). This prevents damage to devices on the input side of the APL3552 by preventing significant current from sinking into the input capacitance.

Over-Temperature Protection

When the junction temperature exceeds 140°C, the internal thermal sense circuit turns off the power FET and allows the device to cool down. When the device's junction temperature cools by 20°C, the internal thermal sense circuit will enable the device, resulting in a pulsed output during continuous thermal protection. Thermal protection is designed to protect the IC in the event of over temperature conditions. For normal operation, the junction temperature cannot exceed T_J=+125°C.

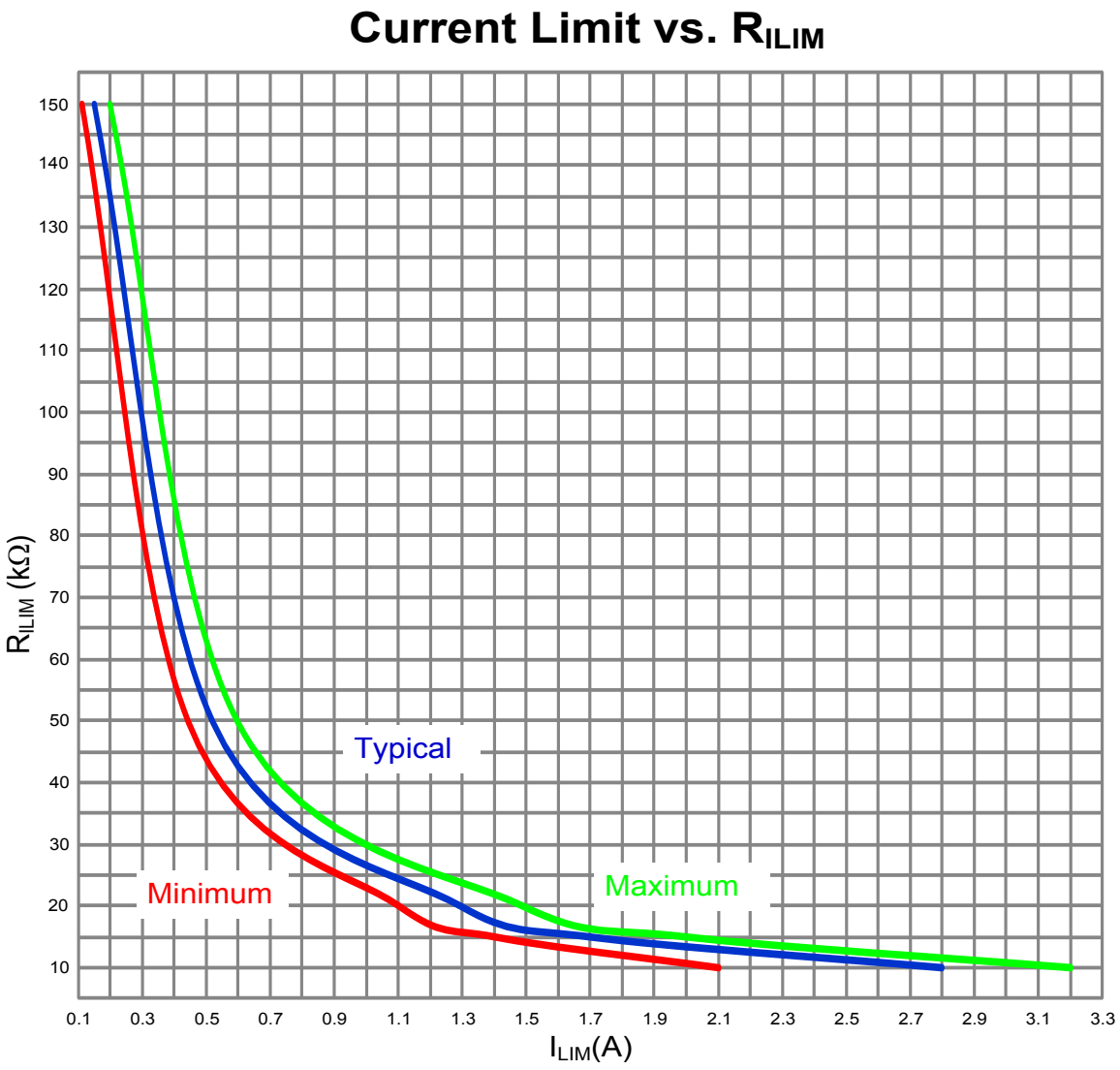
Copyright©ANPEC Electronic Corp.

Function Descriptions (Cont.)

Current-Limit Protection

The APL3552 series of power switches provide the current-limit protection function. The adjustable current limit threshold of APL3552 is user programmable via an external resistor. The recommended 1% resistor range for RILIM is 10kΩ<R_{ILIM}<150kΩ to ensure stability of the internal regulation loop.

While the maximum recommend value of R_{ILIM} is 150kΩ, there is one additional configuration that allows for a lower current-limit threshold. During current limit, the devices limit output current at current limit threshold. For reliable operation, the device should not be operated in current limit for extended period.



Application Information

Input Capacitor

A 10uF ceramic bypass capacitor from IN toGND, located near the APL3552, is strongly recommended to suppress the ringing during short circuit fault event. Without the bypass capacitor, the output short may cause sufficient ringing on the input (from supply lead inductance) to damage internal control circuitry. Additional low-ESR ceramic capacitance may be necessary from IN to GND to prevent unwanted noise from coupling into the sensitive ILIM circuitry.

Output Capacitor

A low-ESR 150uF aluminum electrolytic between OUT and GND is strongly recommended to reduce the voltage droop during hot-attachment of downstream peripheral. Higher-value output capacitor is better when the output load is heavy. Additionally, bypassing the output with a 0.1uF ceramic capacitor improves the immunity of the device to short-circuit transients.

Layout Consideration

The PCB layout should be carefully performed to maximize thermal dissipation and to minimize voltage drop, droop and EMI. The following guidelines must be considered:

1.Please place the input capacitors near the IN pin as close as possible.

2.Output decoupling capacitors for load must be placed near the load as close as possible for decoupling high frequency ripples.

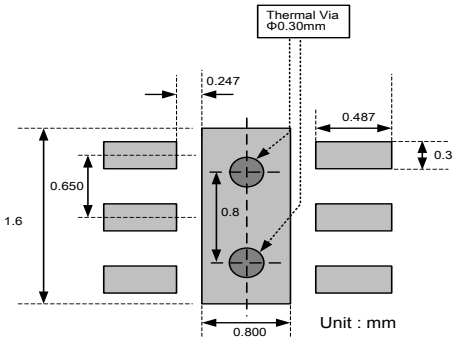
3.Locate APL3552 and output capacitors near the load to reduce parasitic resistance and inductance for excellent load transient performance.

4.The negative pins of the input and output capacitors and the GND pin must be connected to the ground plane of the load.

5.Keep IN and OUT traces as wide and short as possible.

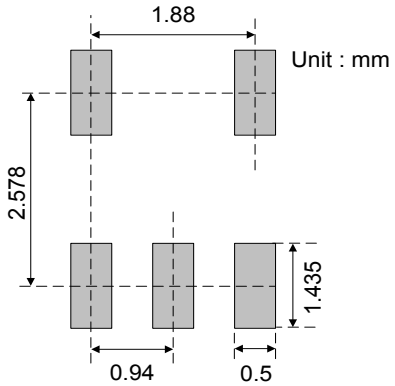
6.The traces routing the R_{ILIM} resistor to the APL3552 should be as short as possible to reduce parasitic effects on the current limit accuracy.

Recommended Minimum Footprint

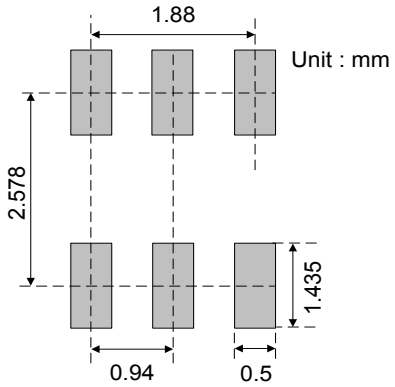


TDFN2X2-6

Recommended Minimum Footprint (Cont.)



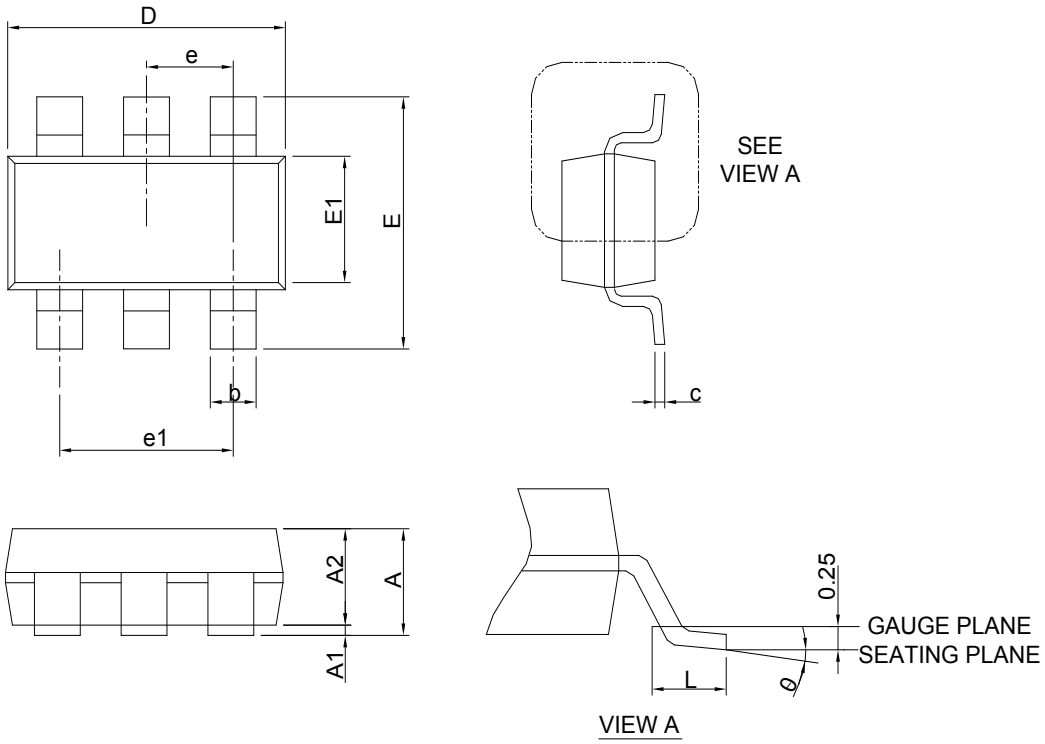
SOT-23-5



SOT-23-6

Package Information

SOT-23-6



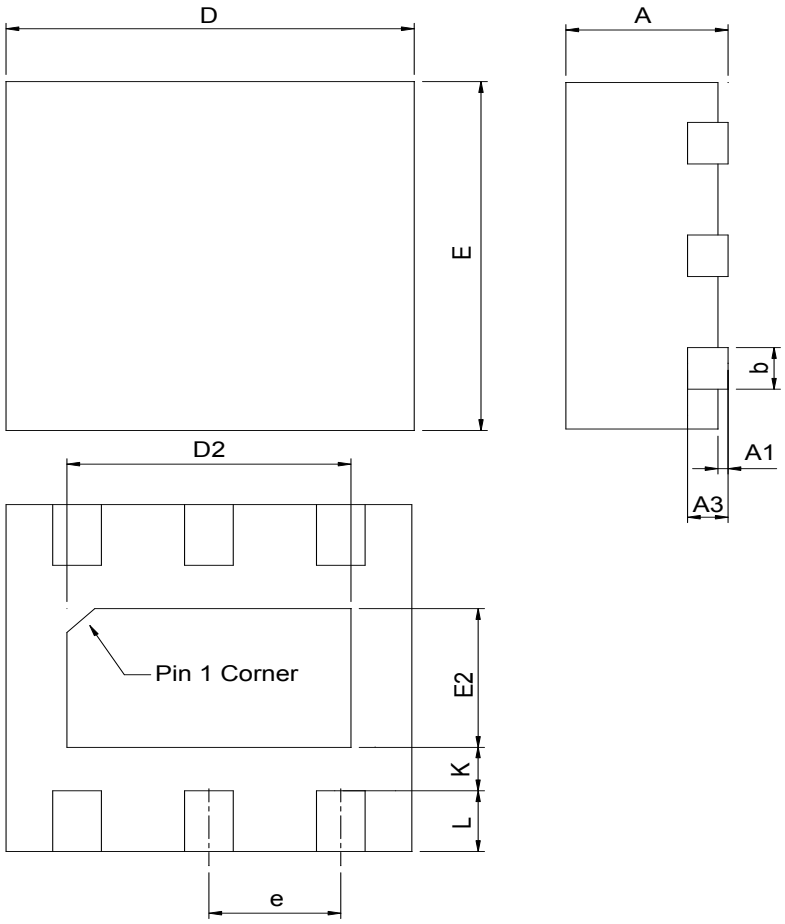
SYMBOL	SOT-23-6			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.45		0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

Note : 1. Follow JEDEC TO-178 AB.
2. Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 10 mil per side.

Copyright©ANPEC Electronic Corp.

Package Information

TDFN2x2-6



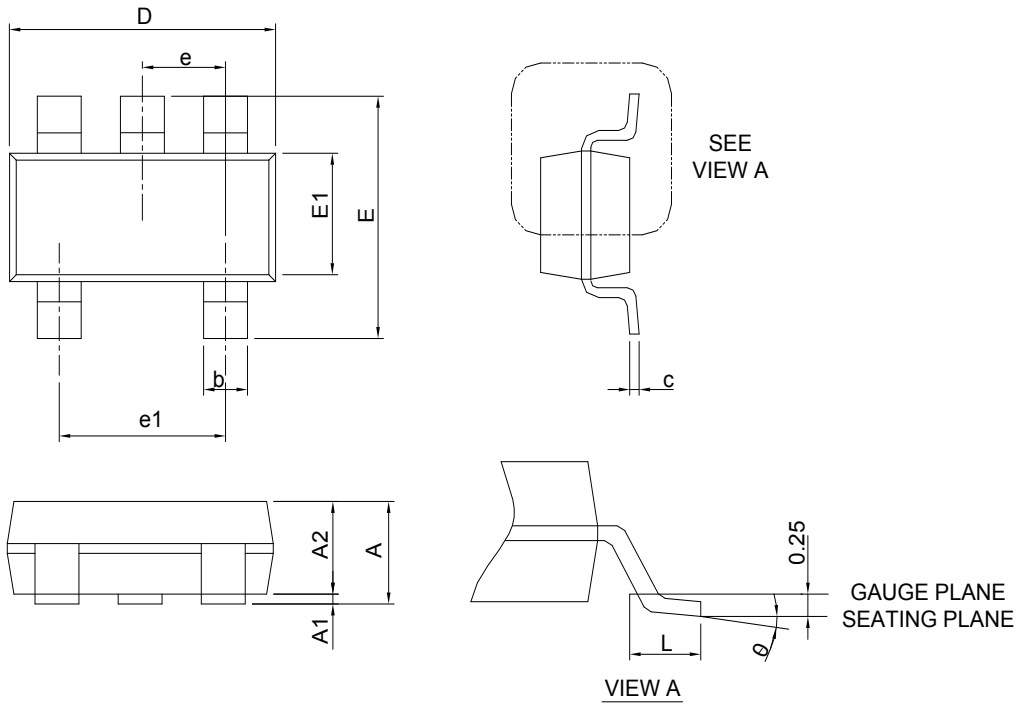
SYMBOL	TDFN2x2-6			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	0.80	0.028	0.031
A1	0.00	0.05	0.000	0.002
A3	0.20 REF		0.008 REF	
b	0.18	0.30	0.007	0.012
D	1.90	2.10	0.075	0.083
D2	1.00	1.60	0.039	0.063
E	1.90	2.10	0.075	0.083
E2	0.60	1.00	0.024	0.039
e	0.65 BSC		0.026 BSC	
L	0.30	0.45	0.012	0.018
K	0.20		0.008	

Note : 1. Followed from JEDEC MO-229 WCCC.

Copyright©ANPEC Electronic Corp.

Package Information

SOT-23-5

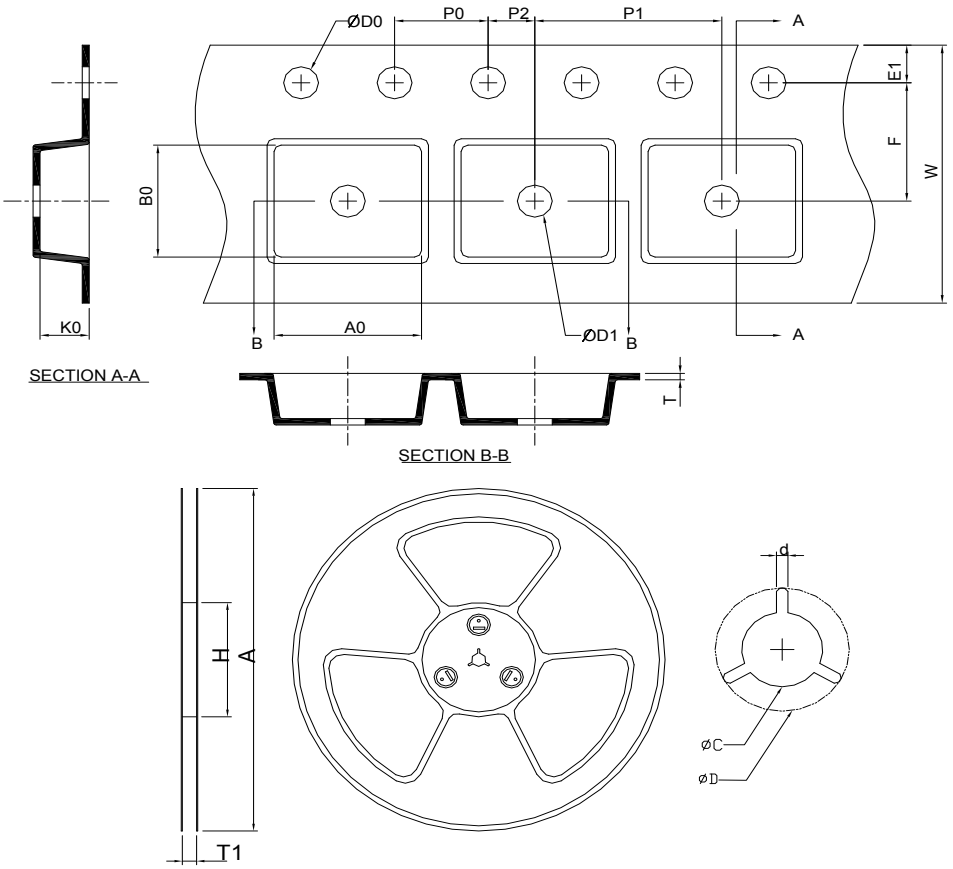


SYMBOL	SOT-23-5			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A		1.45		0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.60	3.00	0.102	0.118
E1	1.40	1.80	0.055	0.071
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

Note : 1. Follow JEDEC TO-178 AA.
2. Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 10 mil per side.

Copyright©ANPEC Electronic Corp.

Carrier Tape & Reel Dimensions



Application	A	H	T1	C	d	D	W	E1	F
SOT-23-6	178.0±2.00	50 MIN.	8.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	8.0±0.30	1.75±0.10	3.5±0.05
	P0	**P1**	**P2**	**D0**	**D1**	**T**	**A0**	**B0**	**K0**
	4.0±0.10	4.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.0 MIN.	0.6+0.00 -0.40	3.20±0.20	3.10±0.20	1.50±0.20
Application	**A**	**H**	**T1**	**C**	**d**	**D**	**W**	**E1**	**F**
TDFN2x2-6	178.0±2.00	50 MIN.	8.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	8.0±0.20	1.75±0.10	3.5±0.05
	P0	**P1**	**P2**	**D0**	**D1**	**T**	**A0**	**B0**	**K0**
	4.0±0.10	4.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.5 MIN.	0.6+0.00 -0.40	2.35±0.20	2.35±0.20	1.00±0.20
Application	**A**	**H**	**T1**	**C**	**d**	**D**	**W**	**E1**	**F**
SOT-23-5	178.0±2.00	50 MIN.	8.4+2.00 -0.00	13.0+0.50 -0.20	1.5 MIN.	20.2 MIN.	8.0±0.30	1.75±0.10	3.5±0.05
	P0	P1	P2	D0	D1	T	A0	B0	K0
	4.0±0.10	4.0±0.10	2.0±0.05	1.5+0.10 -0.00	1.0 MIN.	0.6+0.00 -0.40	3.20±0.20	3.10±0.20	1.50±0.20

(mm)

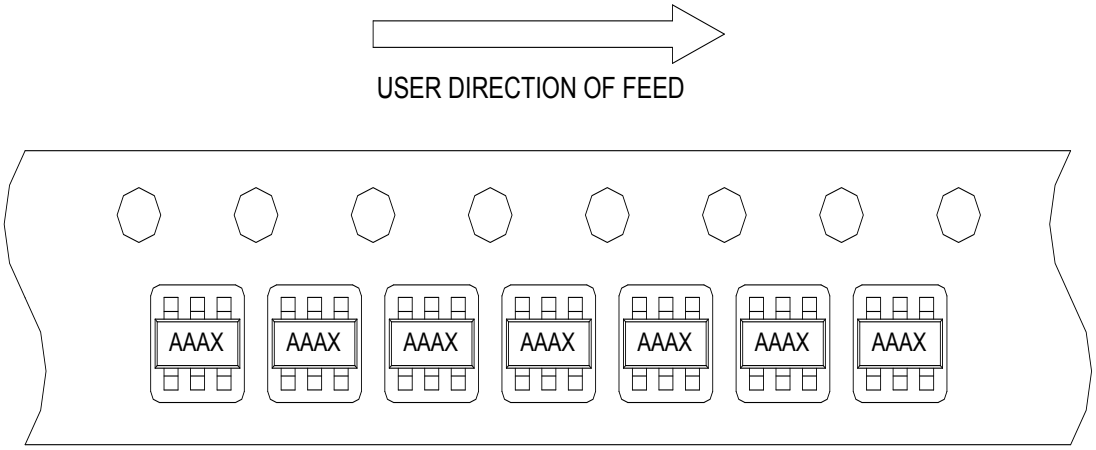
Devices Per Unit

Package Type	Unit	Quantity
SOT-23-6	Tape & Reel	3000
TDFN2x2-6	Tape & Reel	3000
SOT-23-5	Tape & Reel	3000

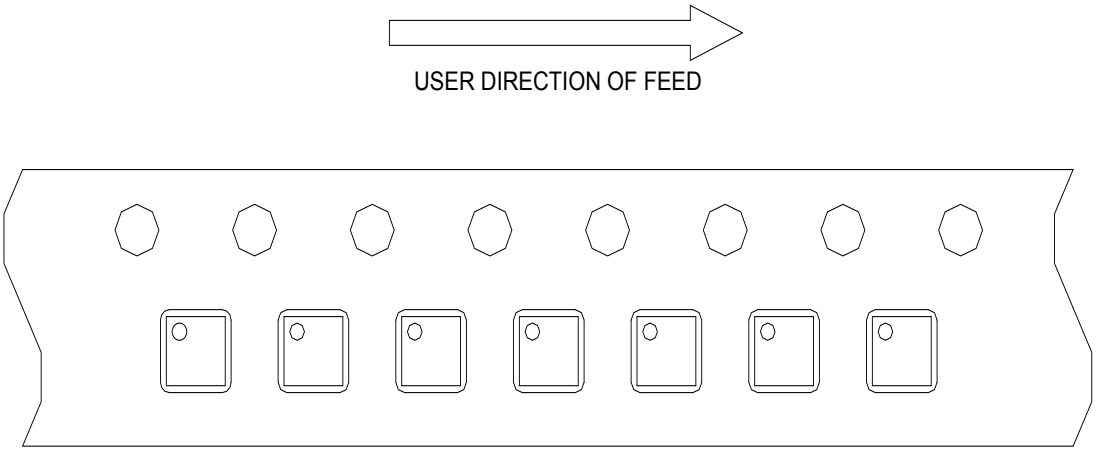
Copyright©ANPEC Electronic Corp.

Taping Direction Information

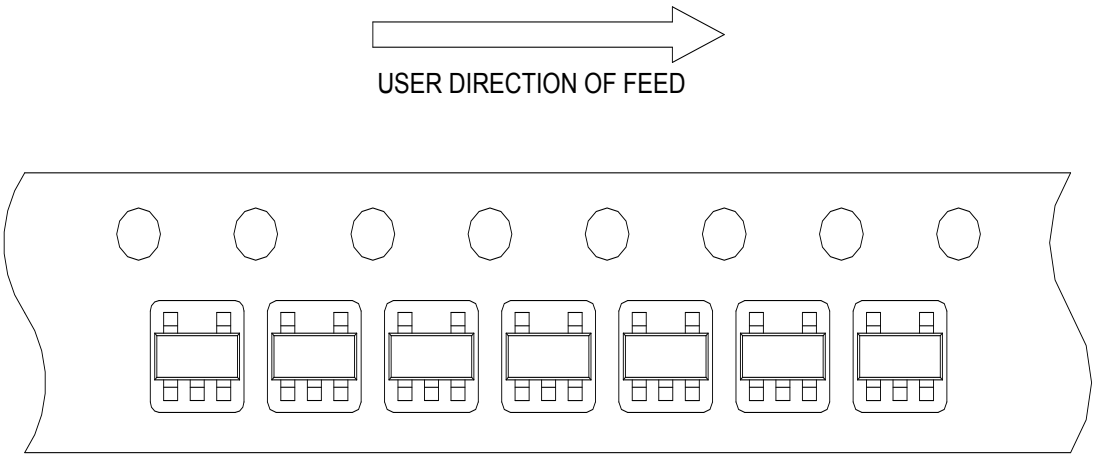
SOT-23-6



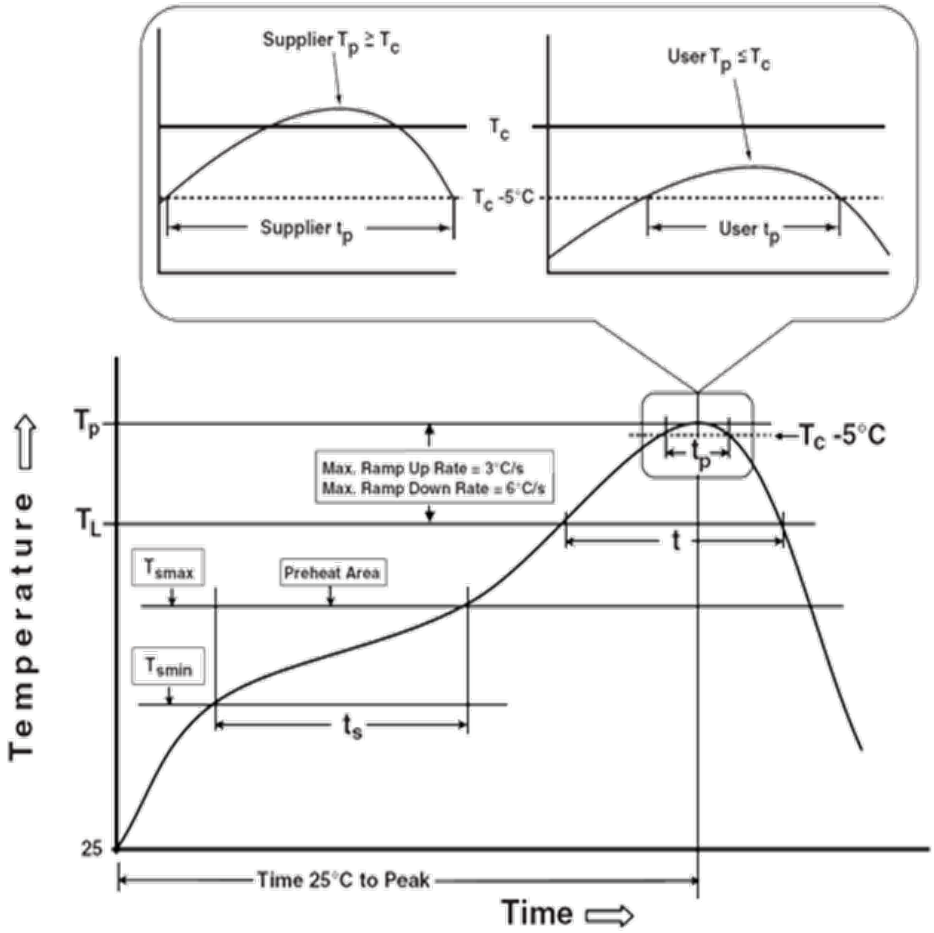
TDFN2x2-6



SOT-23-5



Classification Profile



Classification Reflow Profiles

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat & Soak Temperature min (T_{smin}) Temperature max (T_{smax}) Time (T_{smin} to T_{smax}) (t_s)	100 °C 150 °C 60-120 seconds	150 °C 200 °C 60-120 seconds
Average ramp-up rate (T_{smax} to T_P)	3 °C/second max.	3°C/second max.
Liquidous temperature (T_L) Time at liquidous (t_L)	183 °C 60-150 seconds	217 °C 60-150 seconds
Peak package body Temperature (T_p)*	See Classification Temp in table 1	See Classification Temp in table 2
Time (t_P)** within 5°C of the specified classification temperature (T_c)	20** seconds	30** seconds
Average ramp-down rate (T_p to T_{smax})	6 °C/second max.	6 °C/second max.
Time 25°C to peak temperature	6 minutes max.	8 minutes max.
* Tolerance for peak profile Temperature (T_p) is defined as a supplier minimum and a user maximum. ** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.		

Table 1. SnPb Eutectic Process – Classification Temperatures (Tc)

Package Thickness	Volume mm^3 <350	Volume mm^3 ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2. Pb-free Process – Classification Temperatures (Tc)

Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm – 2.5 mm	260 °C	250 °C	245 °C
≥2.5 mm	250 °C	245 °C	245 °C

Reliability Test Program

Test item	Method	Description
SOLDERABILITY	JESD-22, B102	5 Sec, 245°C
HOLT	JESD-22, A108	1000 Hrs, Bias @ T_j=125°C
PCT	JESD-22, A102	168 Hrs, 100%RH, 2atm, 121°C
TCT	JESD-22, A104	500 Cycles, -65°C~150°C
HBM	MIL-STD-883-3015.7	VHBM ≧ 2KV
MM	JESD-22, A115	VMM ≧ 200V
Latch-Up	JESD 78	10ms, 1_{tr} ≧ 100mA

Copyright©ANPEC Electronic Corp.

Customer Service

Anpec Electronics Corp.
Head Office :
No.6, Dusing 1st Road, SBIP,
Hsin-Chu, Taiwan, R.O.C.
Tel : 886-3-5642000
Fax : 886-3-5642050

Taipei Branch :
2F, No. 11, Lane 218, Sec 2 Jhongsing Rd.,
Sindian City, Taipei County 23146, Taiwan
Tel : 886-2-2910-3838
Fax : 886-2-2917-3838