

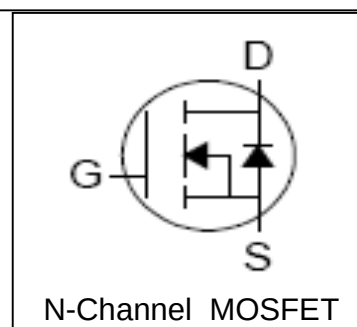
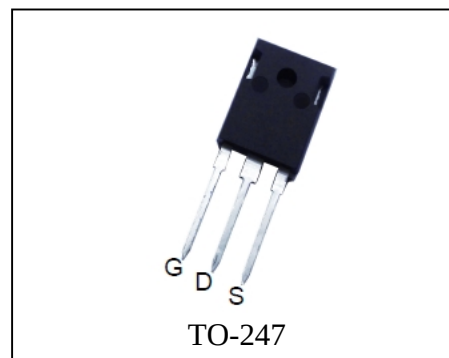
Features

- 500V/18A,
 $R_{DS(ON)} = 0.27\Omega$ (Typ.) @ $V_{GS} = 10V$
- Gate charge minimized
- Low C_{rss} (Typ. 26pF)
- Extremely high dv/dt capability
- 100% avalanche tested
- Lead Free and Green Available

Applications

- High efficiency switch mode power supplies
- Lighting

Pin Description



Absolute Maximum Ratings

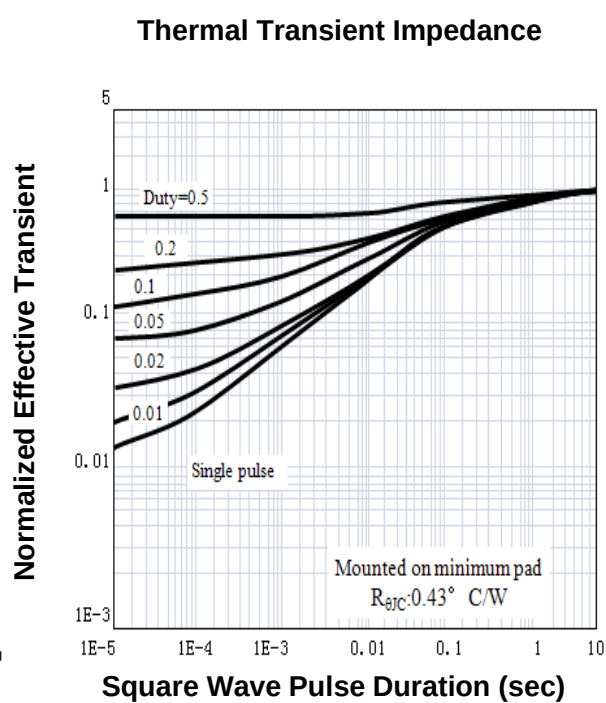
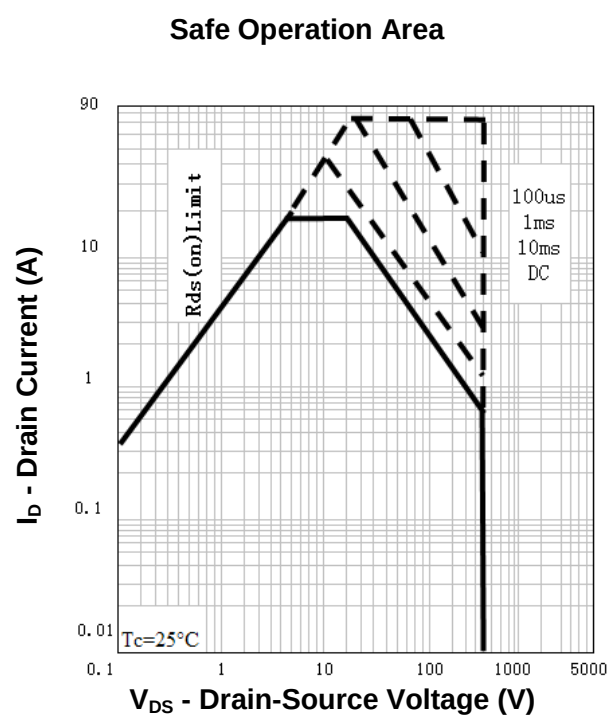
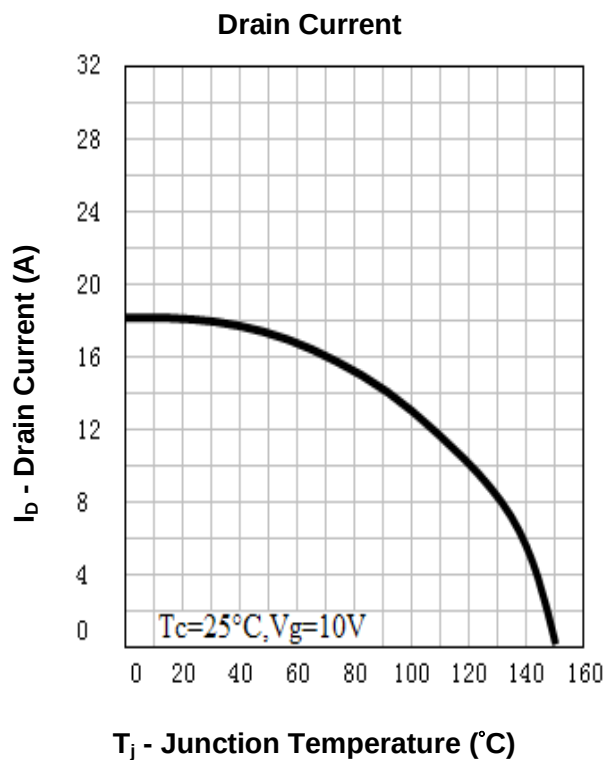
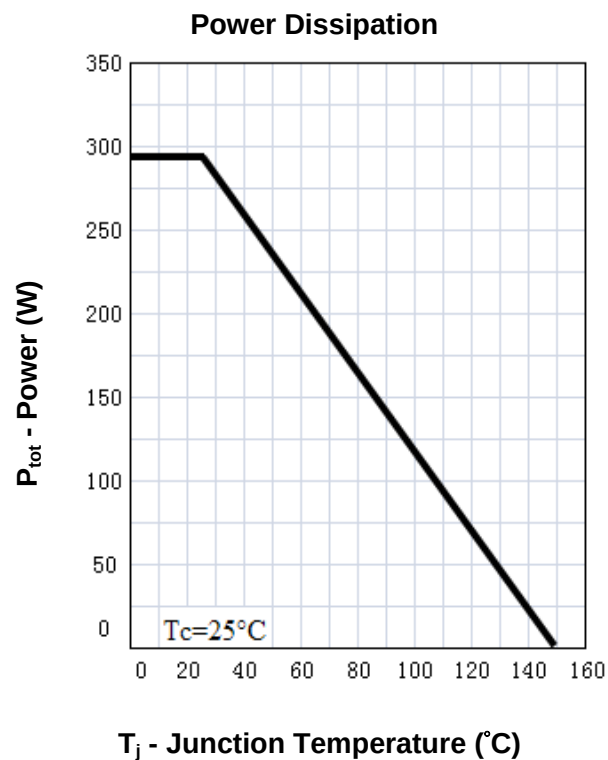
Symbol	Parameter		Rating	Unit
Common Ratings (T _C =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		500	V
V _{GSS}	Gate-Source Voltage		±30	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	18	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _C =25°C	72 ^①	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _C =25°C	18 ^①	A
		T _C =100°C	13.5 ^①	
P _D	Maximum Power Dissipation	T _C =25°C	290	W
		T _C =100°C	116	
R _{θJC}	Thermal Resistance-Junction to Case		0.43	°C/W
Drain-Source Avalanche Ratings				
E _{AS} ^②	Avalanche Energy, Single Pulsed		162	mJ

Electrical Characteristics (T_C=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU5H18Q			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	500			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =500V, V _{GS} =0V			1	μA
		T _J =85°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
I _{GSS}	Gate Leakage Current	V _{GS} =±30V, V _{DS} =0V			±100	nA
R _{DS(ON)} ^③	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =9A		0.27	0.32	Ω
Diode Characteristics						
V _{SD} ^③	Diode Forward Voltage	I _{SD} =18A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =18A, dI _{SD} /dt=100A/μs		490		ns
Q _{rr}	Reverse Recovery Charge			5.8		μC
Dynamic Characteristics ^④						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		10		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =250V, Frequency=1.0MHz		2020		pF
C _{oss}	Output Capacitance			250		
C _{rss}	Reverse Transfer Capacitance			26		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =250V, R _L =14Ω, I _{DS} =18A, V _{GEN} =10V, R _G =25Ω		30		ns
t _r	Turn-on Rise Time			45		
t _{d(OFF)}	Turn-off Delay Time			110		
t _f	Turn-off Fall Time			45		
Gate Charge Characteristics ^④						
Q _g	Total Gate Charge	V _{DS} =400V, V _{GS} =10V, I _{DS} =18A		50		nC
Q _{gs}	Gate-Source Charge			11		
Q _{gd}	Gate-Drain Charge			20		

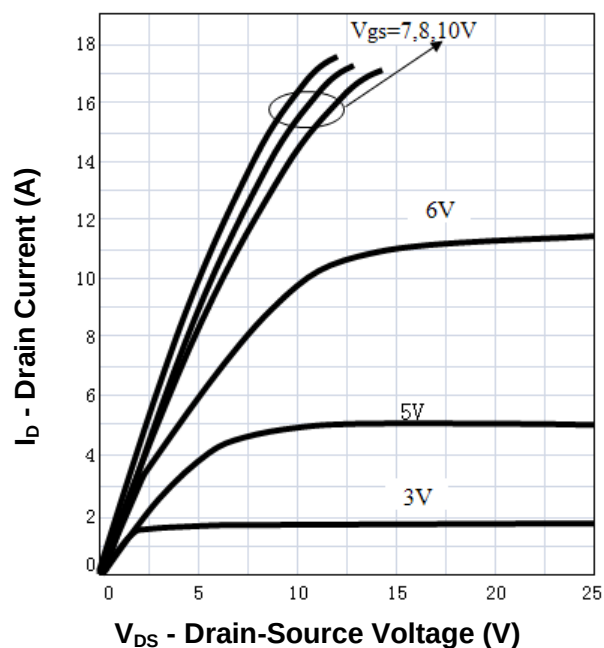
- Notes: ① Current limited by maximum junction temperature.
 ② Limited by T_{Jmax}, I_{AS} =18A, V_{DD} = 100V, R_G = 50Ω , Starting T_J = 25°C.
 ③ Pulse test ; Pulse width≤300μs, duty cycle≤2%.
 ④ Guaranteed by design, not subject to production testing.

Typical Characteristics

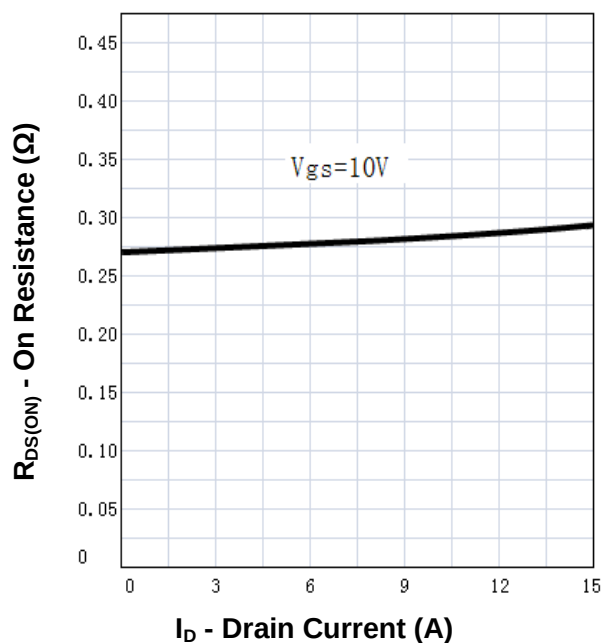


Typical Characteristics

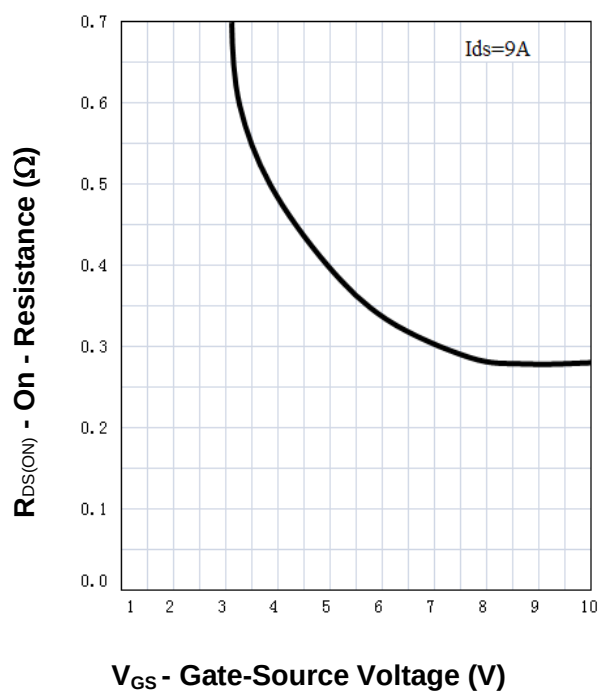
Output Characteristics



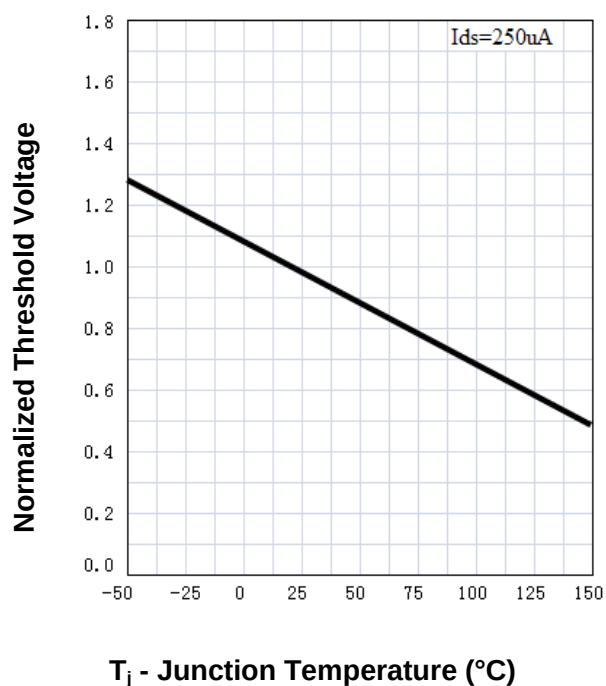
Drain-Source On Resistance



Drain-Source On Resistance

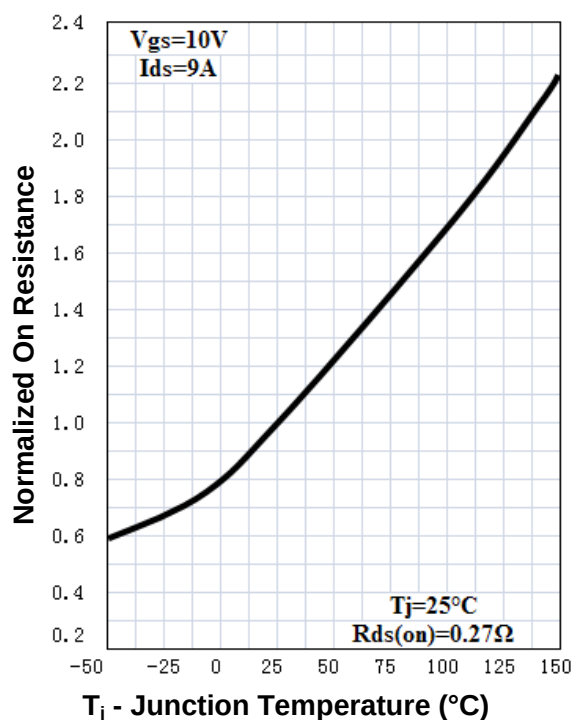


Gate Threshold Voltage

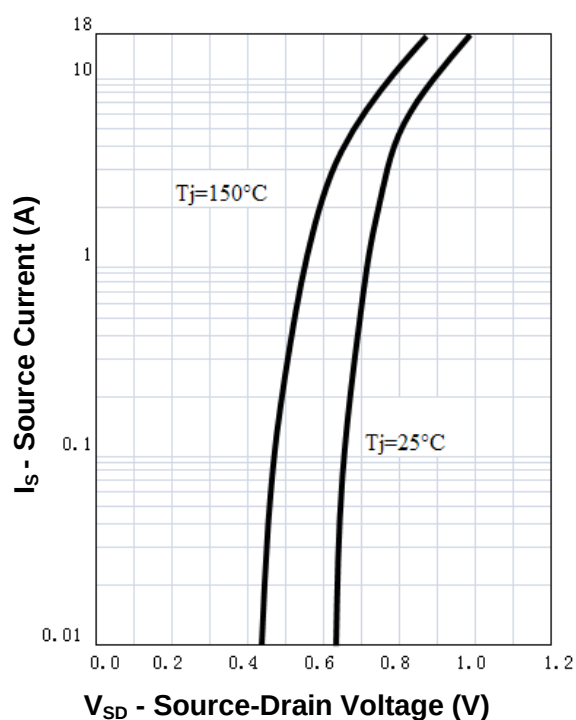


Typical Characteristics

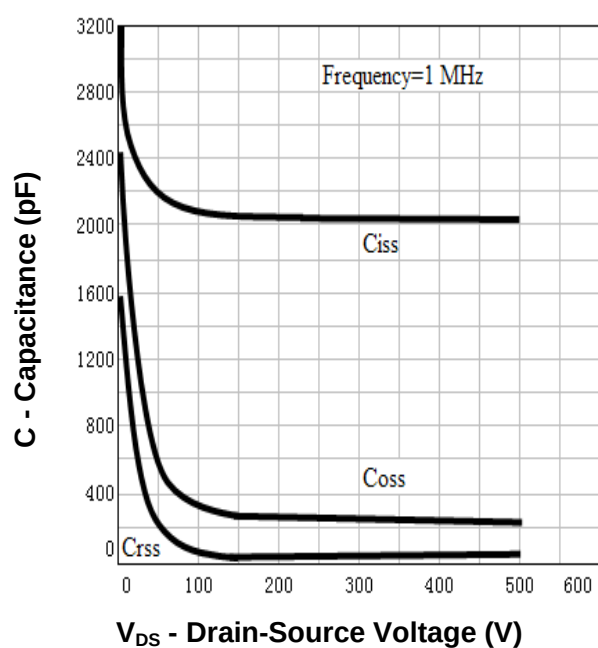
Drain-Source On Resistance



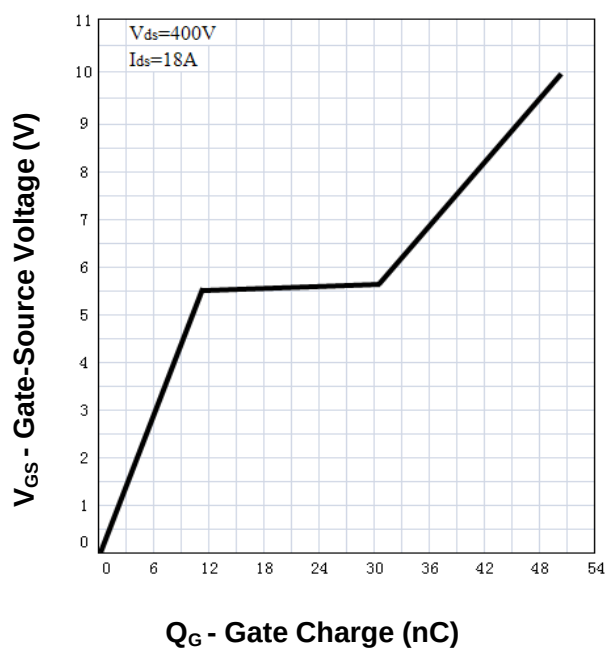
Source-Drain Diode Forward



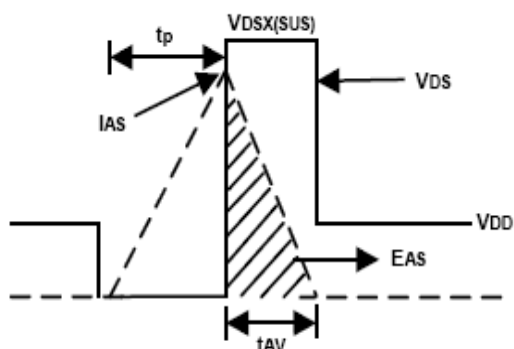
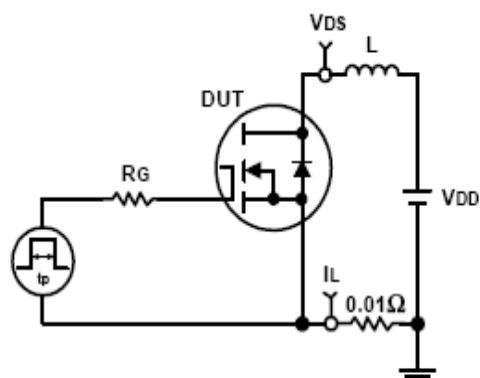
Capacitance



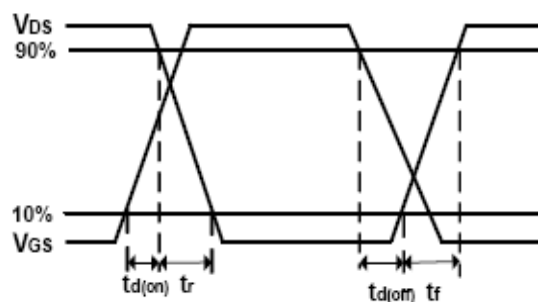
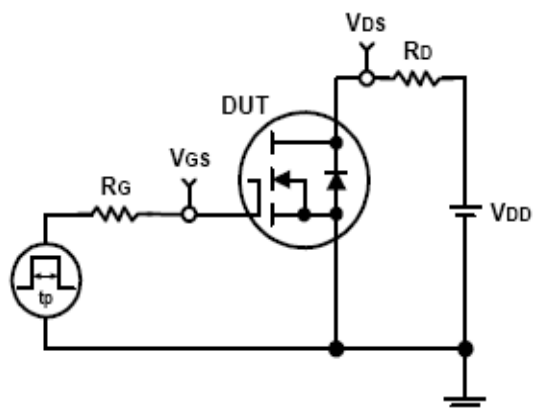
Gate Charge



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

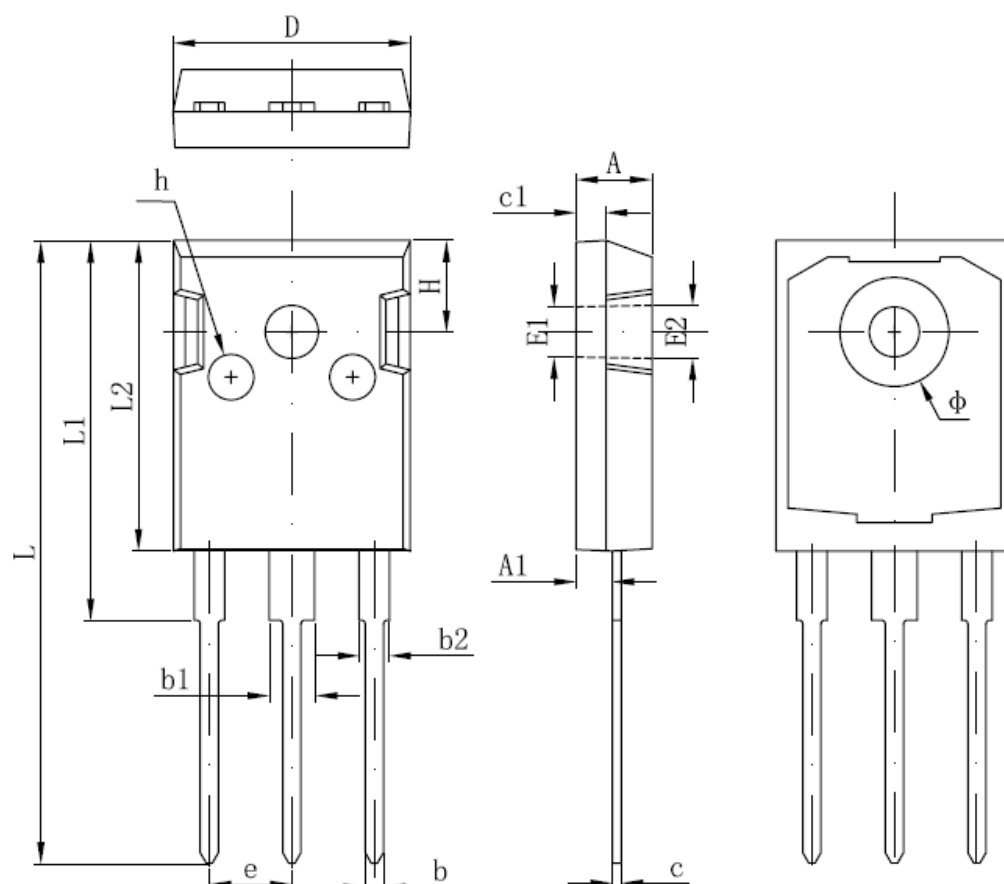


Ordering and Marking Information

Device	Marking	Package	Packaging	Quantity	Reel Size	Tape width
RU5H18Q	RU5H18Q	TO-247	Tube	30	-	-

Package Information

TO-247



SYMBOL	MM		INCH		SYMBOL	MM		INCH	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
A	4.850	5.150	0.191	0.200	E2	3.600 REF		0.142 REF	
A1	2.200	2.600	0.087	0.102	L	40.900	41.300	1.610	1.626
B	1.000	1.400	0.039	0.055	L1	24.800	25.100	0.976	0.988
b1	2.800	3.200	0.110	0.126	L2	20.300	20.600	0.799	0.811
b2	1.800	2.200	0.071	0.087	Φ	7.100	7.300	0.280	0.287
c	0.500	0.700	0.020	0.028	e	5.450 TYP		0.215 TYP	
c1	1.900	2.100	0.075	0.083	H	5.980 REF.		0.235 REF.	
D	15.450	15.750	0.608	0.620	h	0.000	0.300	0.000	0.012
E1	3.500 REF.		0.138 REF.						

ALL DIMENSIONS REFER TO JEDEC STANDARD
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS

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