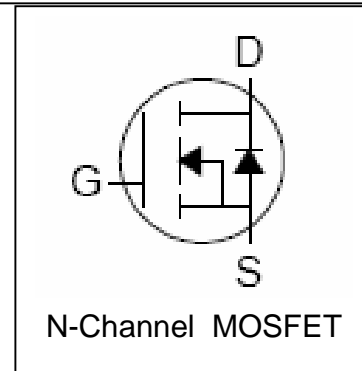
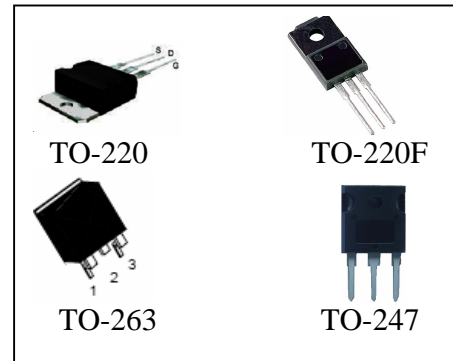


Features

- 100V/40A,
 $R_{DS(ON)} = 21m$ (typ.) @ $V_{GS} = 10V$
- Super High Dense Cell Design
- 100% avalanche tested
- Lead Free and Green Devices Available
 (RoHS Compliant)

Pin Description



Applications

- Switching application

Absolute Maximum Ratings

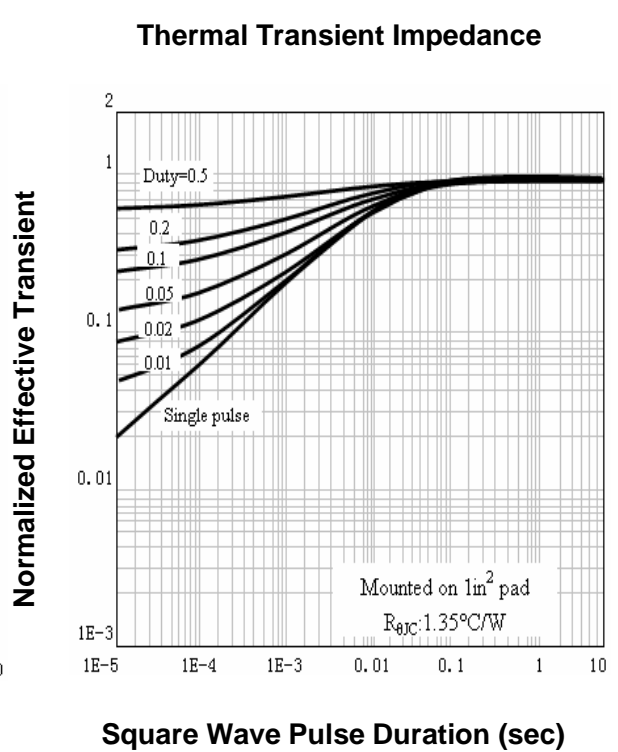
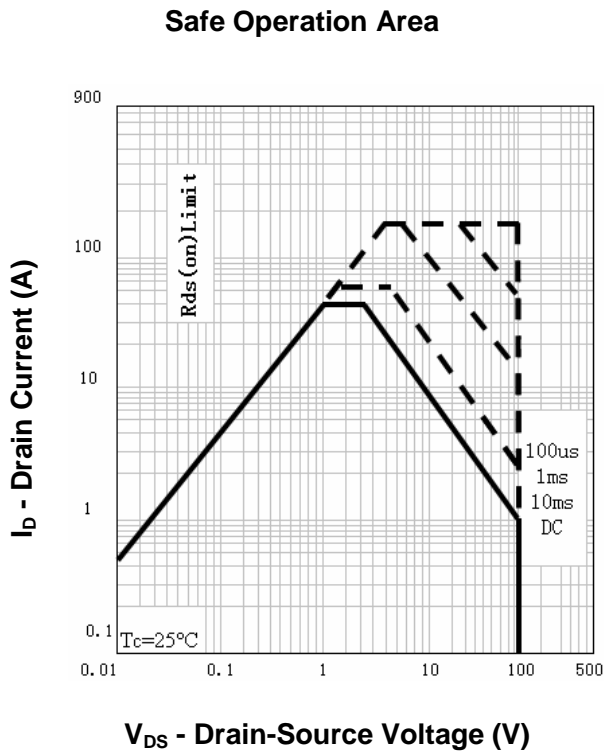
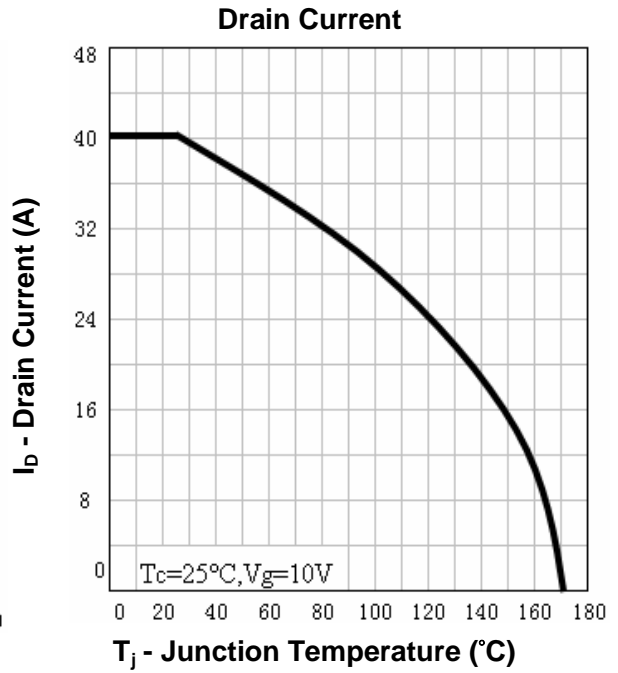
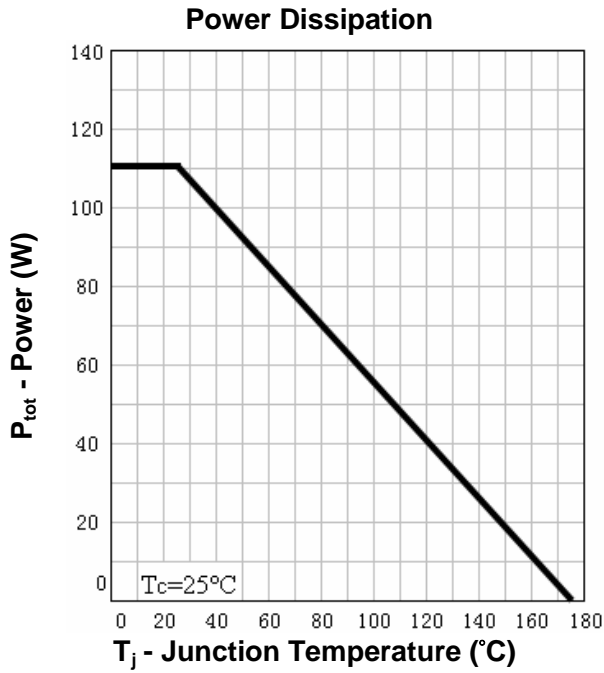
Symbol	Parameter	Rating	Unit
Common Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	100	V
V_{GSS}	Gate-Source Voltage	± 25	
T_J	Maximum Junction Temperature	175	$^\circ C$
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
I_S	Diode Continuous Forward Current	$T_C = 25^\circ C$ 40	A
Mounted on Large Heat Sink			
I_{DP}	300 μs Pulse Drain Current Tested	$T_C = 25^\circ C$ 160 ^①	A
I_D	Continuous Drain Current	$T_C = 25^\circ C$ 40 ^②	A
		$T_C = 100^\circ C$ 27	
P_D	Maximum Power Dissipation	$T_C = 25^\circ C$ 111	W
		$T_C = 100^\circ C$ 56	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1.35	$^\circ C/W$
Drain-Source Avalanche Ratings			
E_{AS} ^③	Avalanche Energy, Single Pulsed	220	mJ

Electrical Characteristics ($T_A=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU1H35Q			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$ $T_J=85^\circ\text{C}$			1	μA
					10	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	3	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 25V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}$ ^④	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=16A$		21	25	m Ω
Diode Characteristics						
V_{SD} ^④	Diode Forward Voltage	$I_{SD}=16A, V_{GS}=0V$		0.8	1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=16A, di_{SD}/dt=100A/\mu s$		100		ns
Q_{rr}	Reverse Recovery Charge			430		nC
Dynamic Characteristics ^⑤						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		2.8		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Frequency=1.0MHz		2100		pF
C_{oss}	Output Capacitance			250		
C_{riss}	Reverse Transfer Capacitance			115		
$t_{d(ON)}$	Turn-on Delay Time			22		
t_r	Turn-on Rise Time	$V_{DD}=50V, R_L=30\Omega,$ $I_{DS}=16A, V_{GEN}=10V,$ $R_G=4.7\Omega$		76		
$t_{d(OFF)}$	Turn-off Delay Time			60		
t_f	Turn-off Fall Time			23		
Gate Charge Characteristics ^⑤						
Q_g	Total Gate Charge	$V_{DS}=80V, V_{GS}=10V,$ $I_{DS}=16A$		44		nC
Q_{gs}	Gate-Source Charge			10		
Q_{gd}	Gate-Drain Charge			21		

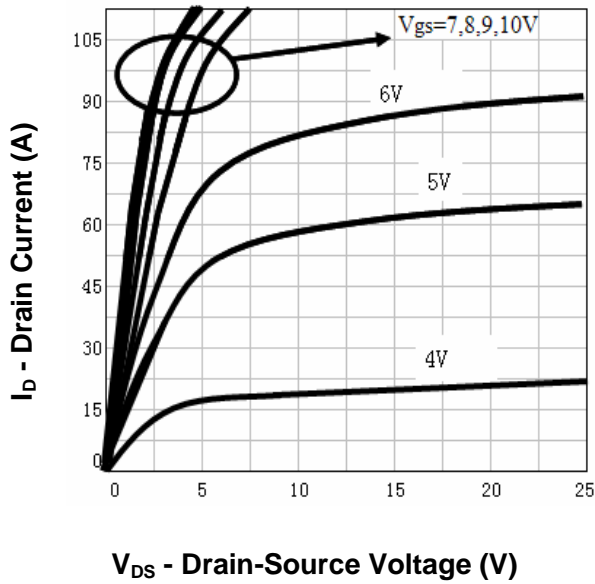
- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ Limited by $T_{Jmax}, I_{AS}=21A, V_{DD}=48V, R_G=50\Omega$, Starting $T_J=25^\circ\text{C}$.
 - ④ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑤ Guaranteed by design, not subject to production testing.

Typical Characteristics

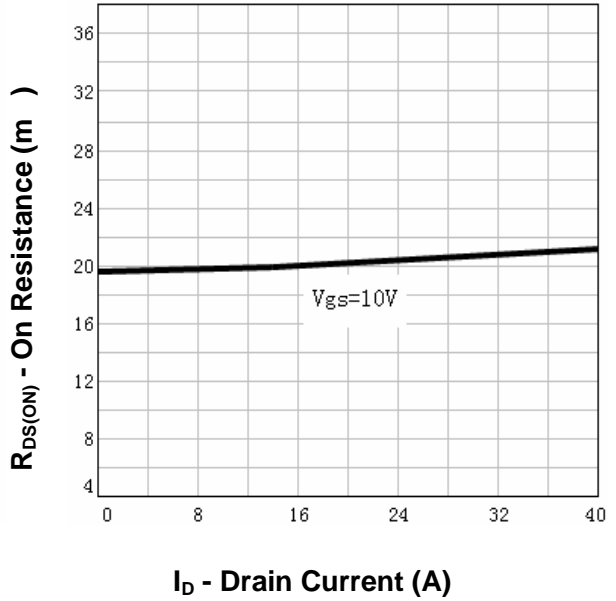


Typical Characteristics

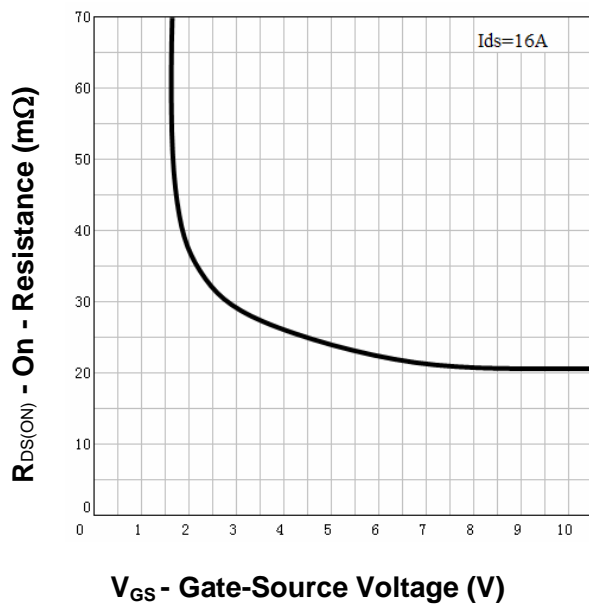
Output Characteristics



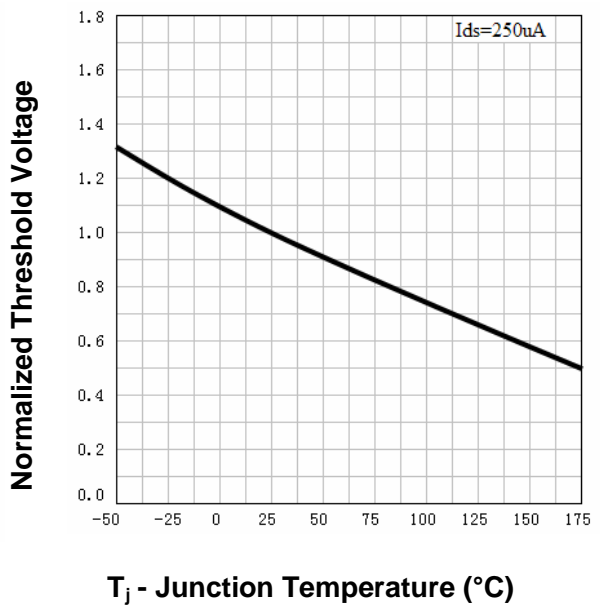
Drain-Source On Resistance



Drain-Source On Resistance

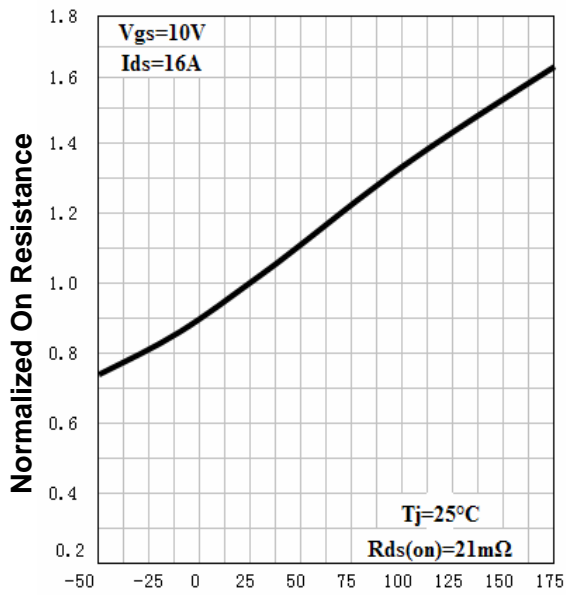


Gate Threshold Voltage



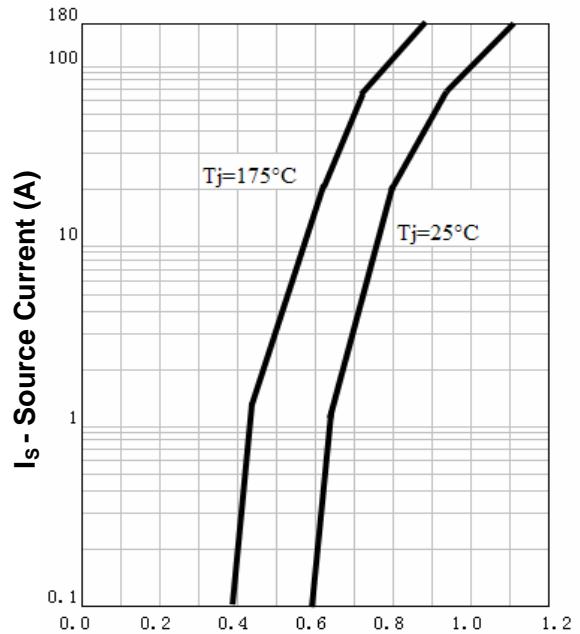
Typical Characteristics

Drain-Source On Resistance



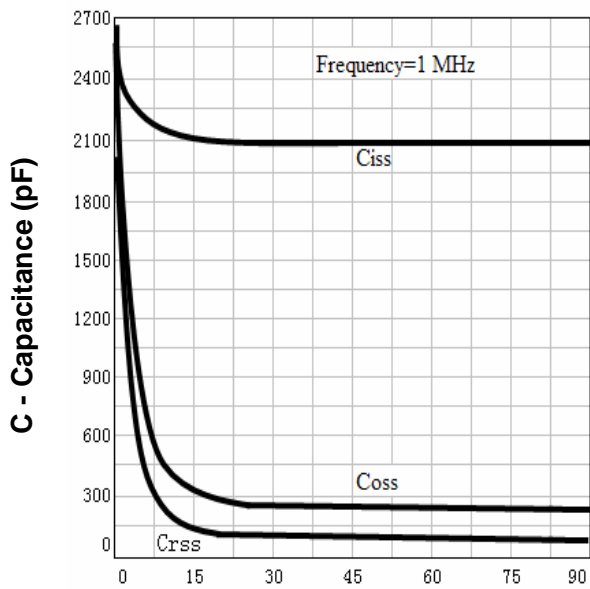
T_J - Junction Temperature (°C)

Source-Drain Diode Forward



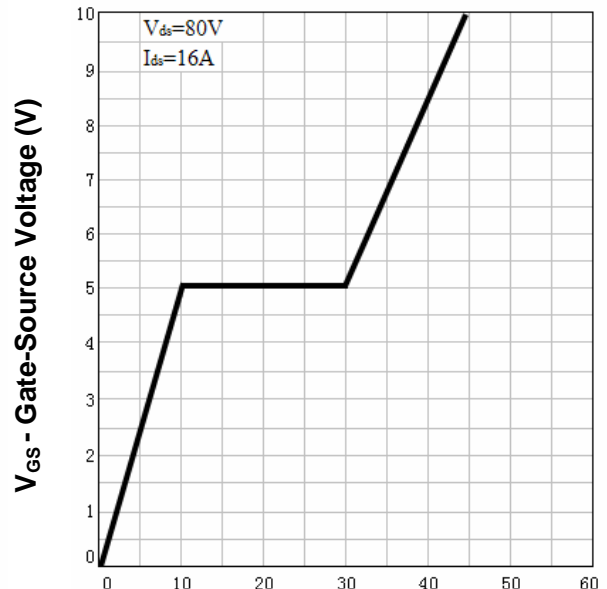
V_{SD} - Source-Drain Voltage (V)

Capacitance



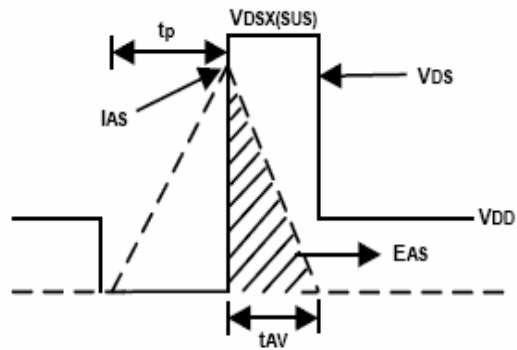
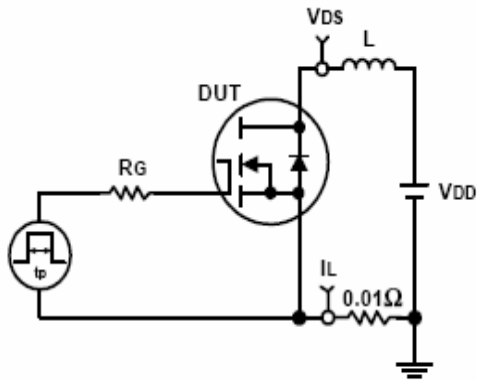
V_{DS} - Drain-Source Voltage (V)

Gate Charge

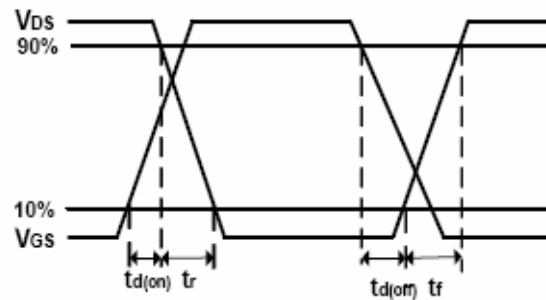
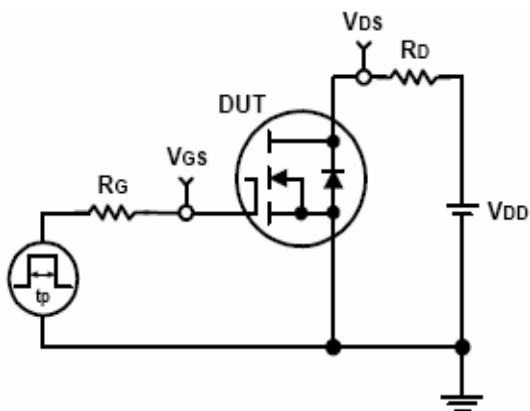


Q_G - Gate Charge (nC)

Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Ordering and Marking Information**RU1H35****Package (Available)**

Q : TO247

Operating Temperature Range

C : -55 to 175 °C

Assembly Material

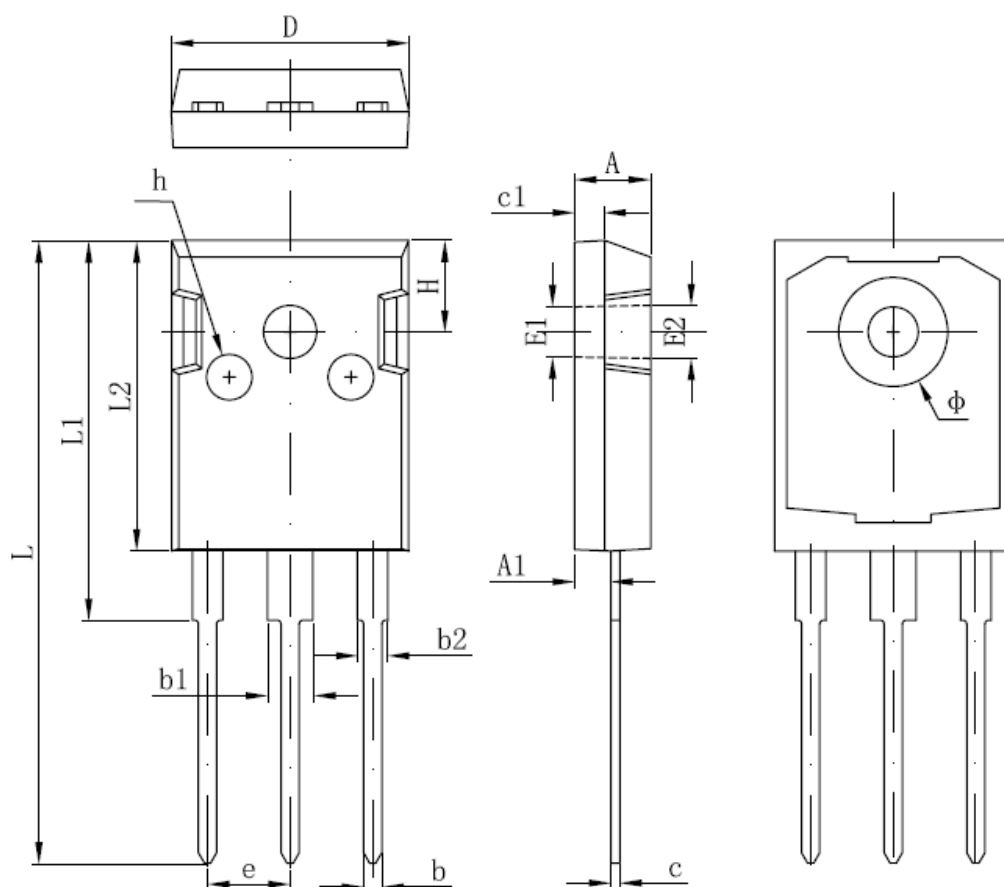
G : Green & Lead Free

Packaging

T : TUBE

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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