

Features

- 250V/65A,
 $R_{DS(ON)} = 48m\Omega(Typ.)@V_{GS}=10V$
- Low $R_{DS(ON)}$
- Planar Technology
- Reliable and Rugged
- 100% Avalanche Tested
- 100% Rg Tested

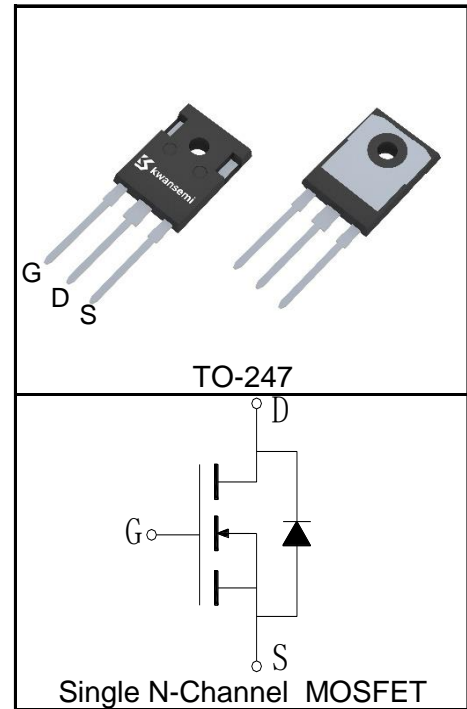
Applications

- DC-DC Converters and Off-line UPS
- Power Management in Inverter System



Halogen-Free

Pin Description



Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
Common Ratings ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)			
V_{DSS}	Drain-Source Voltage	250	V
V_{GSS}	Gate-Source Voltage	± 30	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 65	A
Mounted on Large Heat Sink			
$I_{DP}^{①}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 260	A
$I_D^{②}$	Continuous Drain Current($V_{GS}=10V$)	$T_C=25^\circ\text{C}$ 65	A
		$T_C=100^\circ\text{C}$ 41	
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 417	W
		$T_C=100^\circ\text{C}$ 167	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.3	$^\circ\text{C/W}$
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	50	$^\circ\text{C/W}$
Drain-Source Avalanche Ratings			
$E_{AS}^{④}$	Avalanche Energy, Single Pulsed	841	mJ

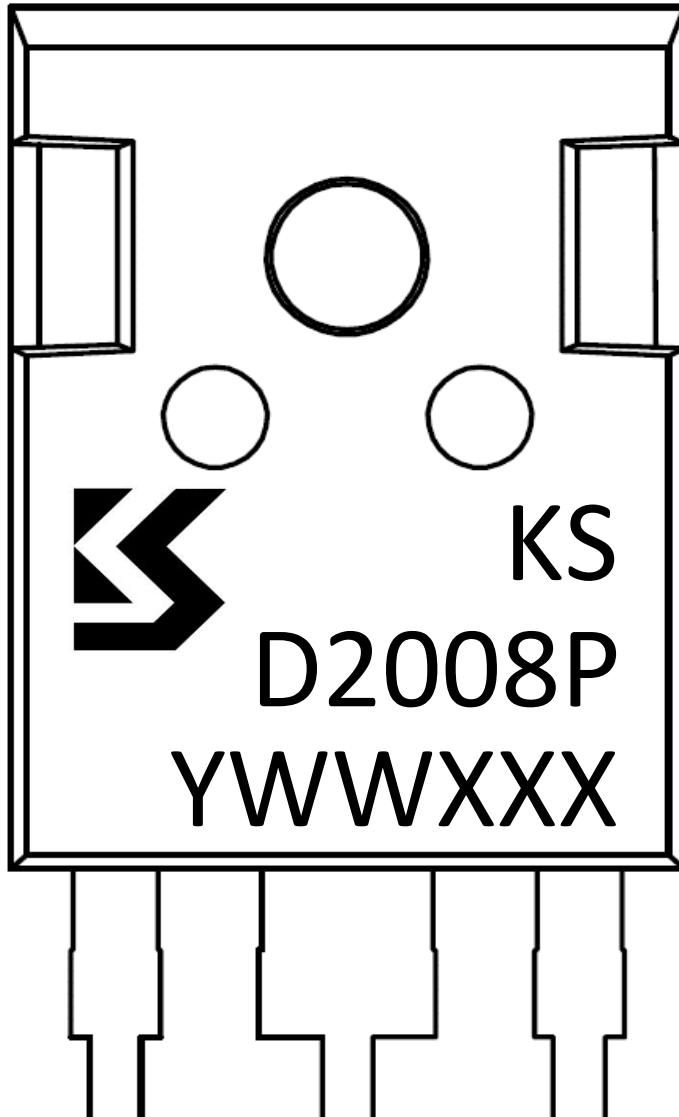
Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KSD2008PAP			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	250			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=250V, V_{GS}=0V$			1	μA
		$T_J=125^\circ C$			30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	3	4	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=30A$		48	60	$m\Omega$
		$V_{GS}=6V, I_{DS}=15A$		50	70	$m\Omega$
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=30A, V_{GS}=0V$		0.83	1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=30A, dI_{SD}/dt=100A/\mu s$		201		ns
Q_{rr}	Reverse Recovery Charge			1034		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	0.2	0.75	1.2	Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=125V,$ Frequency=1.0MHz		4800		pF
C_{oss}	Output Capacitance			665		
C_{rss}	Reverse Transfer Capacitance			50		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=125V, I_{DS}=30A,$ $V_{GEN}=10V, R_G=6\Omega$		44		ns
t_r	Turn-on Rise Time			81		
$t_{d(OFF)}$	Turn-off Delay Time			105		
t_f	Turn-off Fall Time			70		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=125V, V_{GS}=10V,$ $I_{DS}=30A$		105		nC
Q_{gs}	Gate-Source Charge			28		
Q_{gd}	Gate-Drain Charge			33		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature.
 - ③ When mounted on 1 inch square copper board, $t \leq 10\text{sec}$. The value in any given application depends on the user's specific board design.
 - ④ Limited by $T_{Jmax}, I_{AS}=58A, L=0.5mH, V_{DD}=80V, R_G=25\Omega$, Starting $T_J=25^\circ C$, 100% tested and guaranteed.
 - ⑤ Pulse test; Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 - ⑥ Guaranteed by design, not subject to production testing.

Ordering and Marking Information

Device	Package	Packaging	Quantity	Reel Size	Tape width
KSD2008PAP	TO-247	Tube	30	-	-

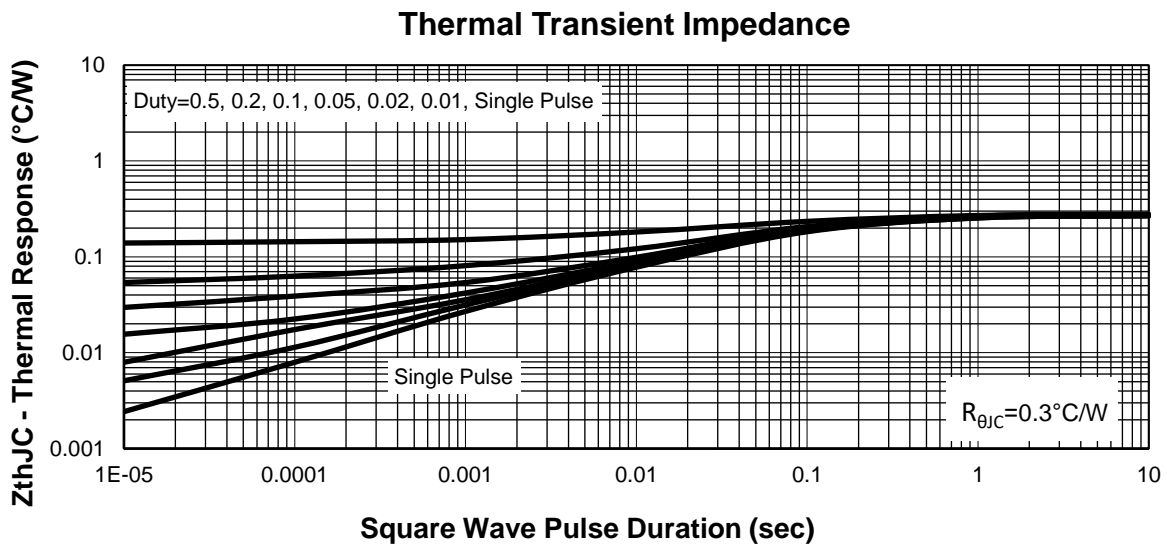
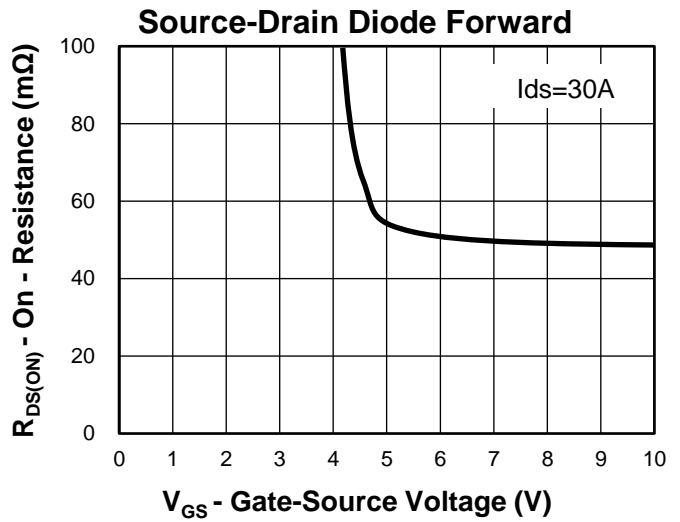
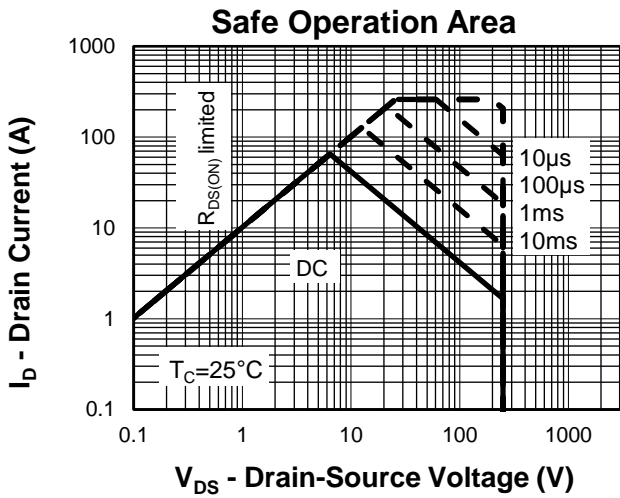
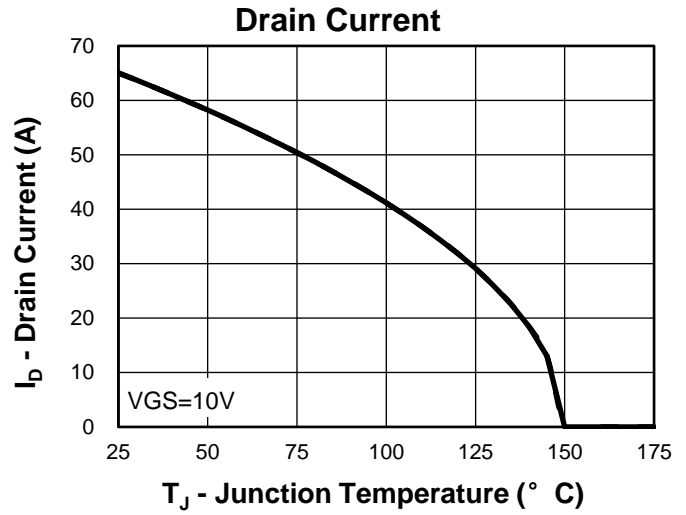
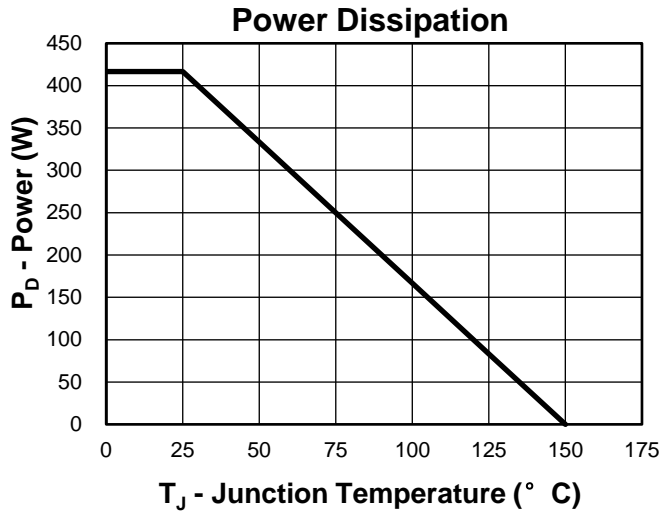


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

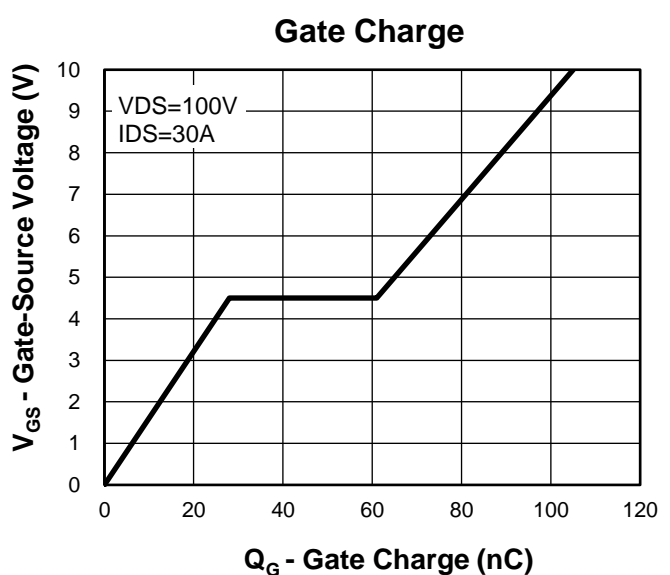
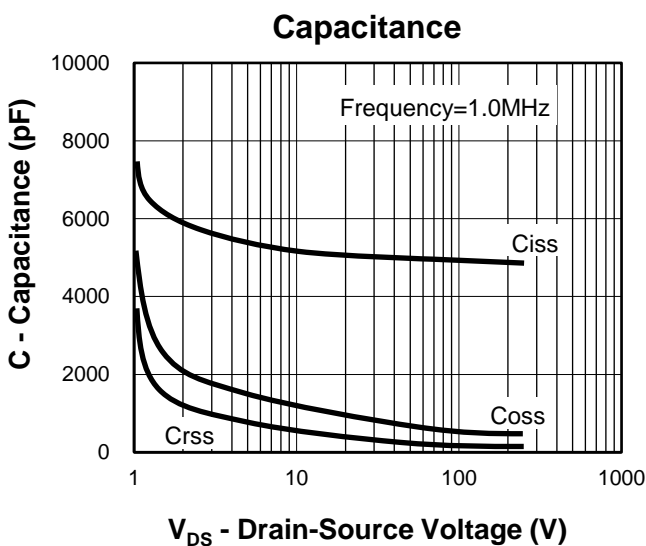
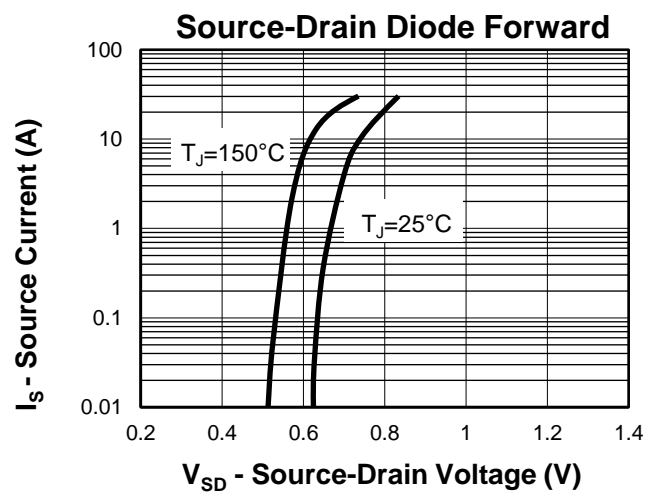
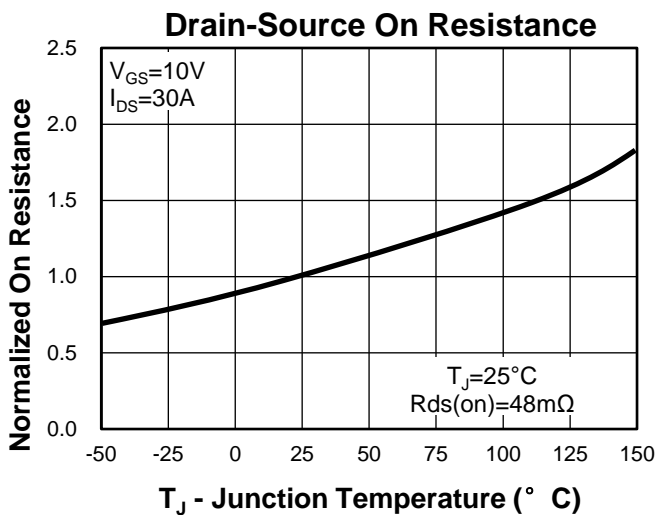
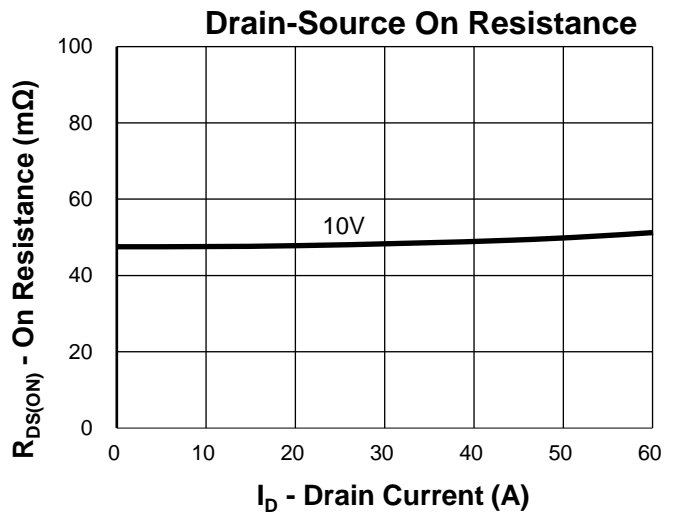
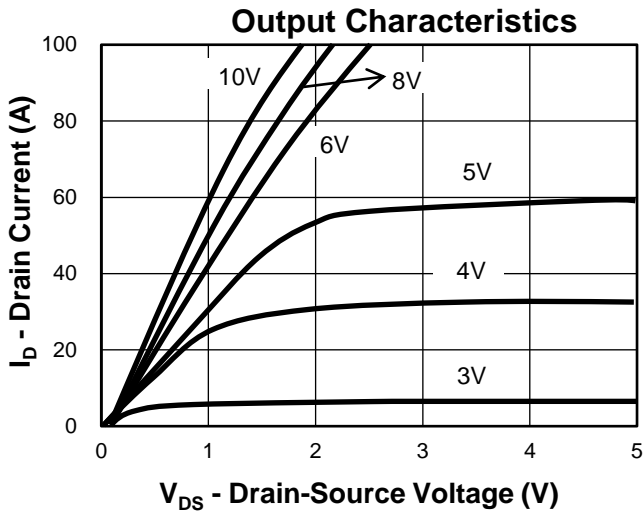
2nd Line: Part Number(D2008P)

3rd Line: Lot Number(YWWXXX)

Typical Characteristics

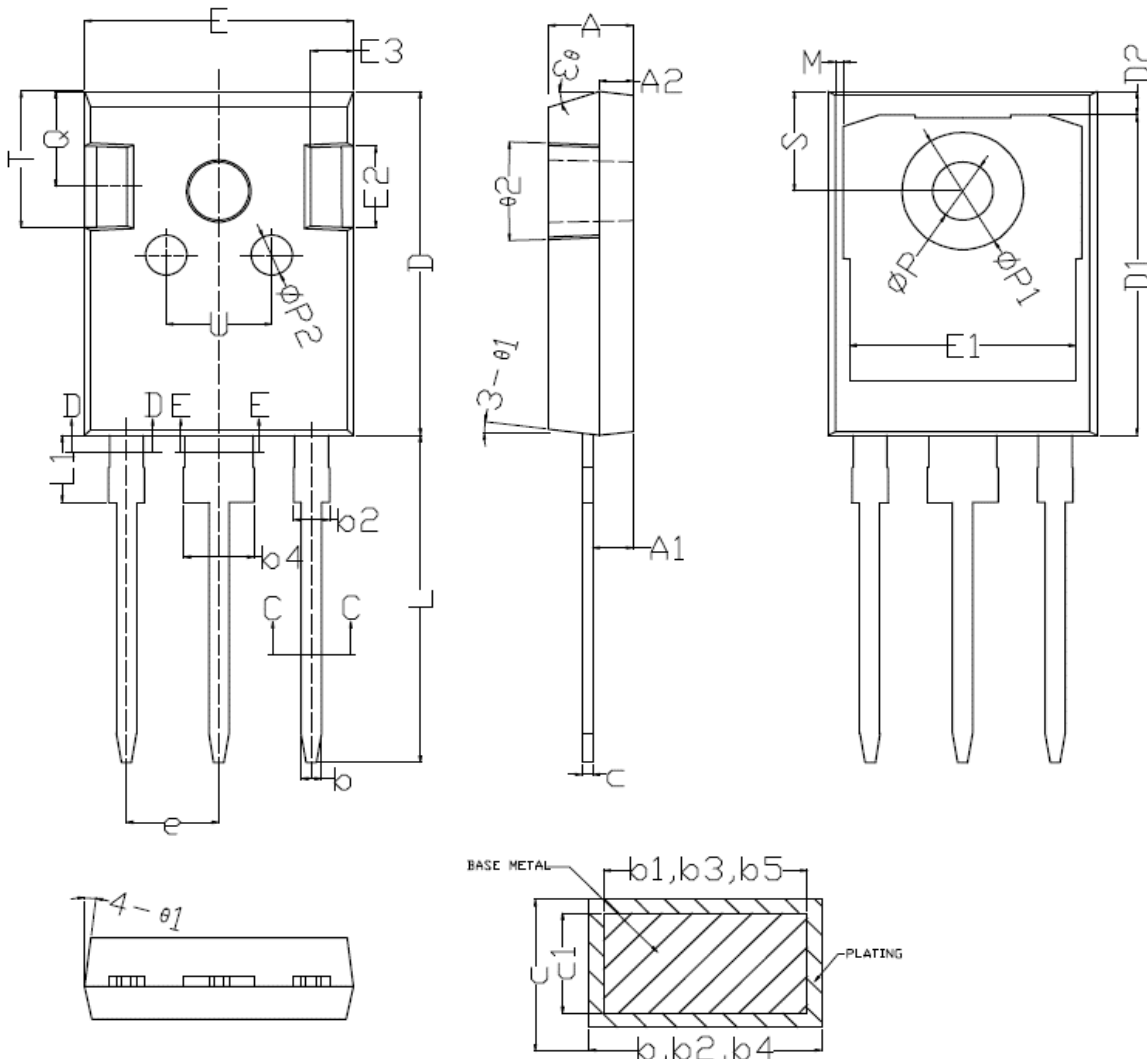


Typical Characteristics



Package Information

TO-247



SECTION C-C,D-D,E-E

10/1

SYMBOL	MM			INCH			SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX		MIN	NOM	MAX	MIN	NOM	MAX
A	4.90	5.00	5.10	0.193	0.197	0.201	E2	4.90	5.00	5.10	0.193	0.197	0.201
A1	2.31	2.41	2.51	0.091	0.095	0.099	E3	2.40	2.50	2.60	0.094	0.098	0.102
A2	1.90	2.00	2.10	0.075	0.079	0.083	e	5.44 BSC			0.21 BSC		
b	1.16	1.21	1.26	0.046	0.048	0.050	L	19.80	19.92	20.10	0.780	0.784	0.791
b1	1.15	1.20	1.25	0.045	0.047	0.049	L1	*	*	4.30	*	*	0.169
b2	1.95	2.10	2.15	0.077	0.083	0.085	M	0.35	0.50	0.75	0.014	0.020	0.030
b3	1.94	2.09	2.14	0.076	0.082	0.084	Φp	3.50	3.60	3.70	0.138	0.142	0.146
b4	3.10	3.15	3.20	0.122	0.124	0.126	Φp1	7.00	7.20	7.40	0.276	0.283	0.291
b5	3.09	3.14	3.19	0.122	0.124	0.126	Φp2	2.40	2.50	2.60	0.094	0.098	0.102
c	0.59	0.61	0.66	0.023	0.024	0.026	Q	5.60	5.80	6.00	0.220	0.228	0.236
c1	0.58	0.60	0.65	0.023	0.024	0.026	S	6.05	6.15	6.25	0.238	0.242	0.246
D	20.90	21.00	21.10	0.823	0.827	0.831	T	9.80	10.00	10.20	0.386	0.394	0.402
D1	16.25	16.55	16.85	0.640	0.652	0.663	U	6.00	6.20	6.40	0.236	0.244	0.252
D2	1.05	1.20	1.35	0.041	0.047	0.053	θ1	5°	7°	9°	5°	7°	9°
E	15.70	15.80	15.90	0.618	0.622	0.626	θ2	3°	5°	8°	3°	5°	8°
E1	13.10	13.30	13.50	0.516	0.524	0.531	θ3	13°	16°	19°	13°	16°	19°

Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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