

Features

- 200V/136A,
 $R_{DS(ON)} = 11m\Omega(Typ.)@V_{GS}=10V$
- Low $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and Rugged
- 100% Avalanche Tested

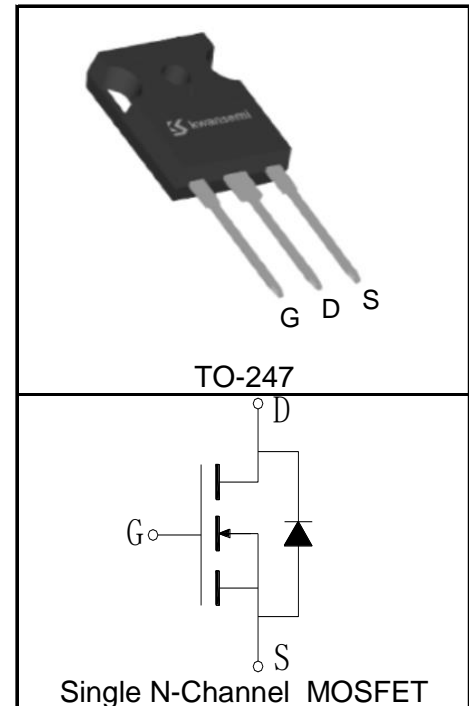
Applications

- DC-DC Converters and Off-line UPS
- Motor Control



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	200	V	
V_{GSS}	Gate-Source Voltage	± 20		
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	$T_C=25^\circ\text{C}$	136	A
Mounted on Large Heat Sink				
$I_{DP}^{(1)}$	300 μs Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	544	A
$I_D^{(2)}$	Continuous Drain Current($V_{GS}=10V$)	$T_C=25^\circ\text{C}$	136	A
		$T_C=100^\circ\text{C}$	86	
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	500	W
		$T_C=100^\circ\text{C}$	200	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.25	$^\circ\text{C}/\text{W}$	
$R_{\theta JA}^{(3)}$	Thermal Resistance-Junction to Ambient	50	$^\circ\text{C}/\text{W}$	
Drain-Source Avalanche Ratings				
$E_{AS}^{(4)}$	Avalanche Energy, Single Pulsed	1225	mJ	

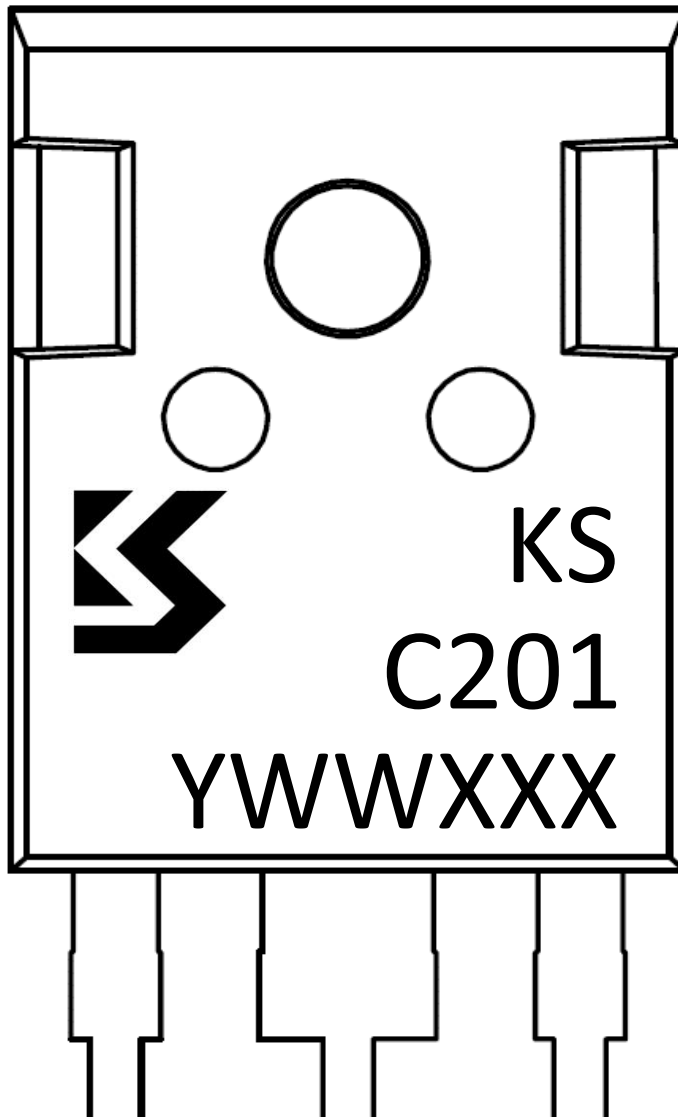
Electrical Characteristics ($T_C=25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Test Condition	KSC201PA			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	200			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=200V, V_{GS}=0V$			1	μA
		$T_J=125^\circ\text{C}$			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	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$R_{DS(ON)}^{(5)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=40A$		11	15	m Ω
Diode Characteristics						
$V_{SD}^{(5)}$	Diode Forward Voltage	$I_{SD}=40A, V_{GS}=0V$		0.82	1.2	V
t_{rr}	Reverse Recovery Time	$I_{SD}=40A, dI_{SD}/dt=100A/\mu s$		90		ns
Q_{rr}	Reverse Recovery Charge			323		nC
Dynamic Characteristics⁽⁶⁾						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		2.1		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=100V,$ Frequency=1.0MHz		11560		pF
C_{oss}	Output Capacitance			810		
C_{riss}	Reverse Transfer Capacitance			325		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=100V, I_{DS}=40A,$ $V_{GEN}=10V, R_G=6\Omega$		32		ns
t_r	Turn-on Rise Time			46		
$t_{d(OFF)}$	Turn-off Delay Time			95		
t_f	Turn-off Fall Time			20		
Gate Charge Characteristics⁽⁶⁾						
Q_g	Total Gate Charge	$V_{DS}=100V, V_{GS}=10V,$ $I_{DS}=40A$		212		nC
Q_{gs}	Gate-Source Charge			42		
Q_{gd}	Gate-Drain Charge			69		

- Notes:
- ① Pulse width limited by safe operating area.
 - ② Calculated continuous current based on maximum allowable junction temperature. The package limitation current is 90A.
 - 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 $T_{Jmax}, I_{AS}=70A, L=0.5\text{mH}, V_{DD}=48V, R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$, 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
KSC201PA	TO-247	Tube	30	-	-

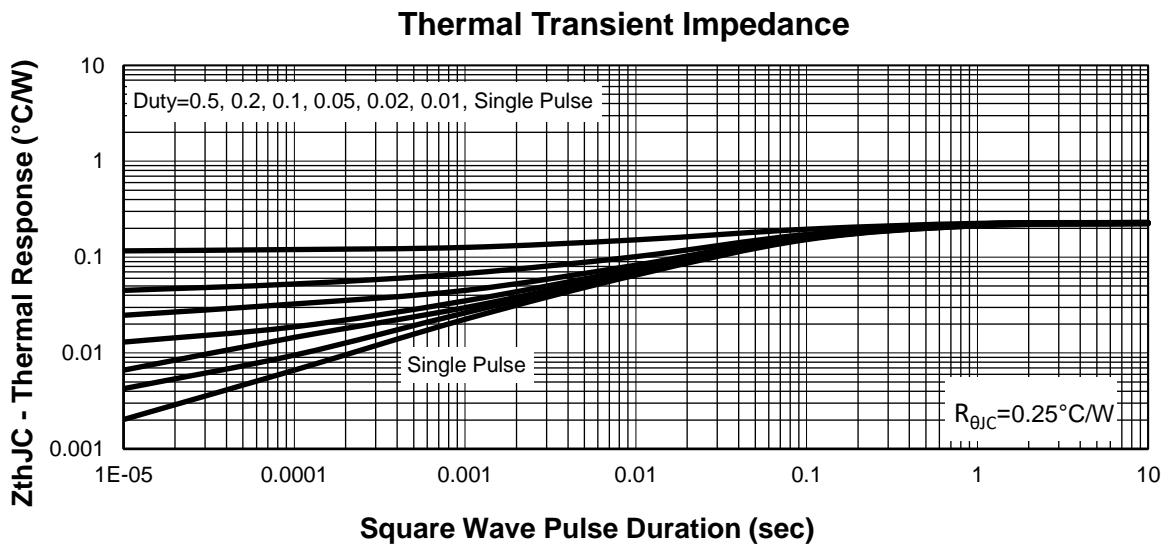
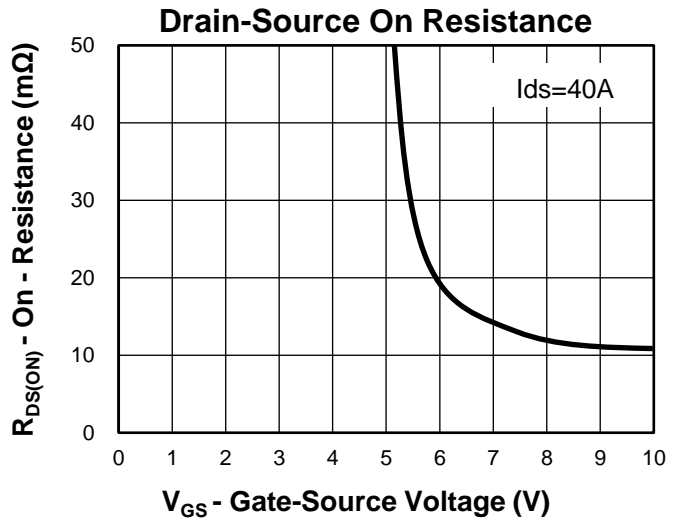
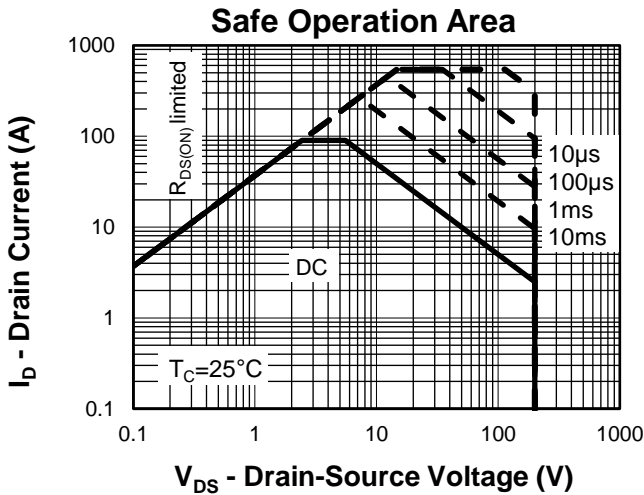
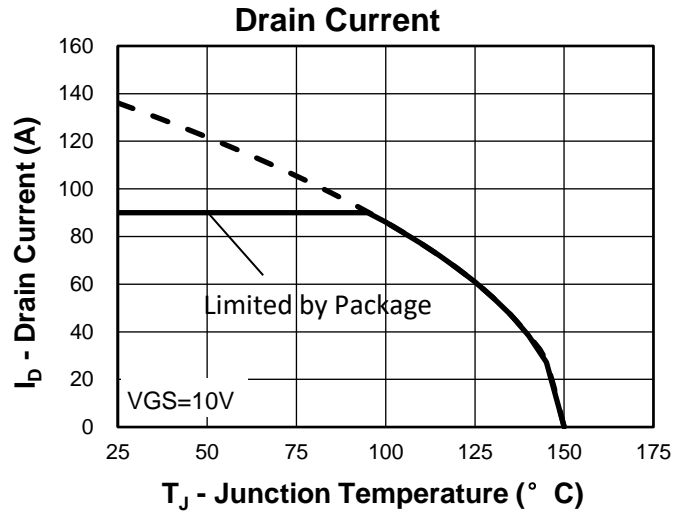
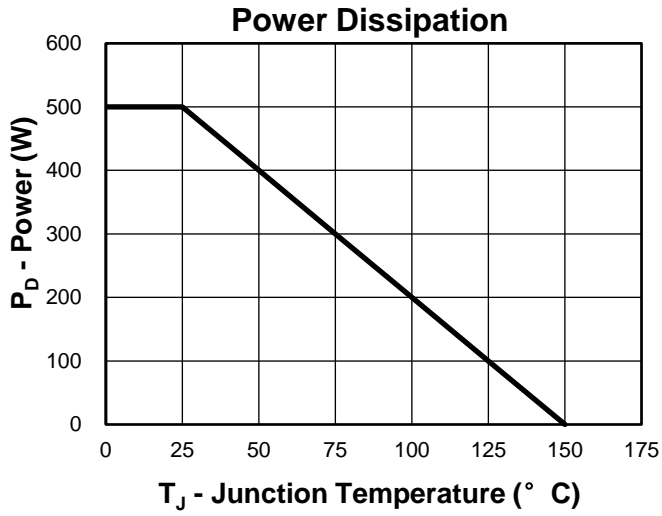


1st Line: Kwansemi LOGO, Kwansemi Code(KS)

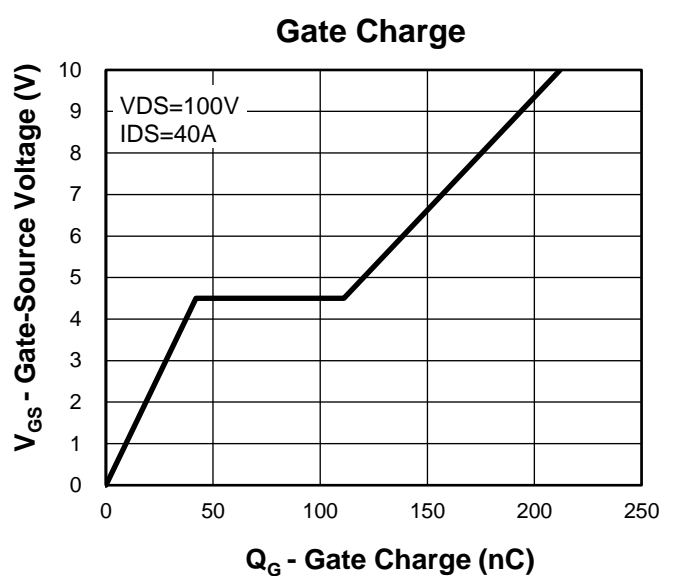
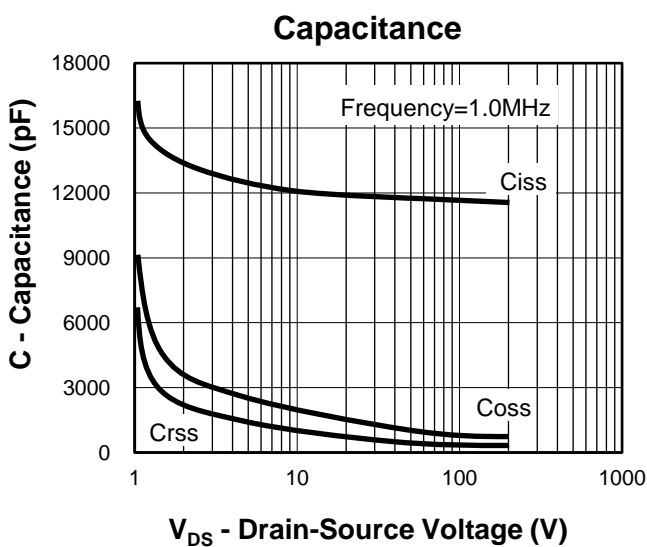
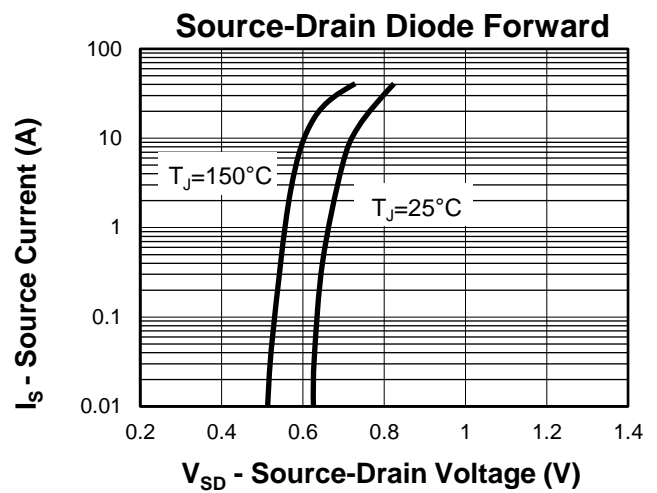
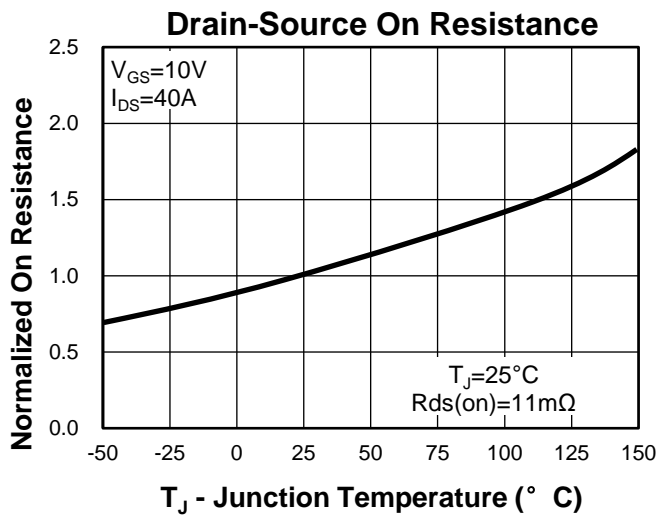
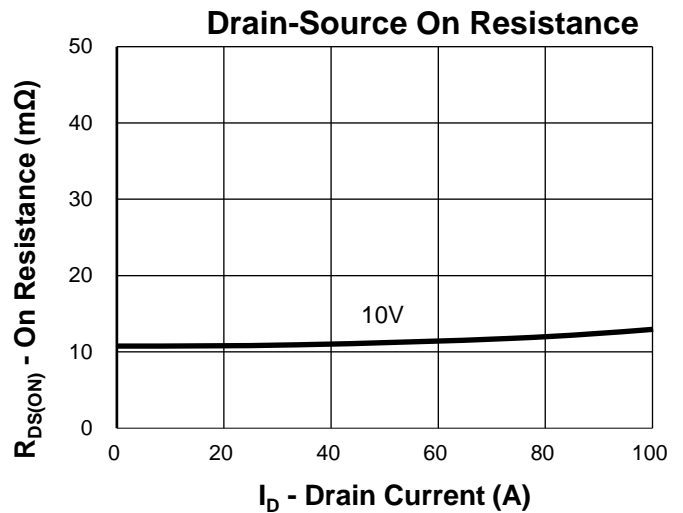
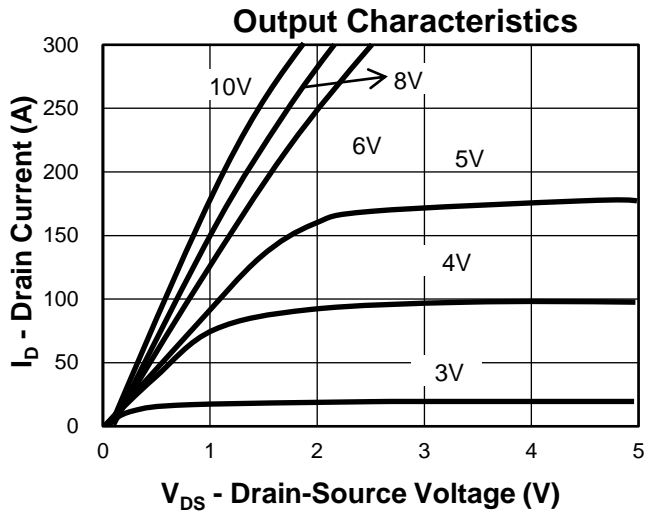
2nd Line: Part Number(C201)

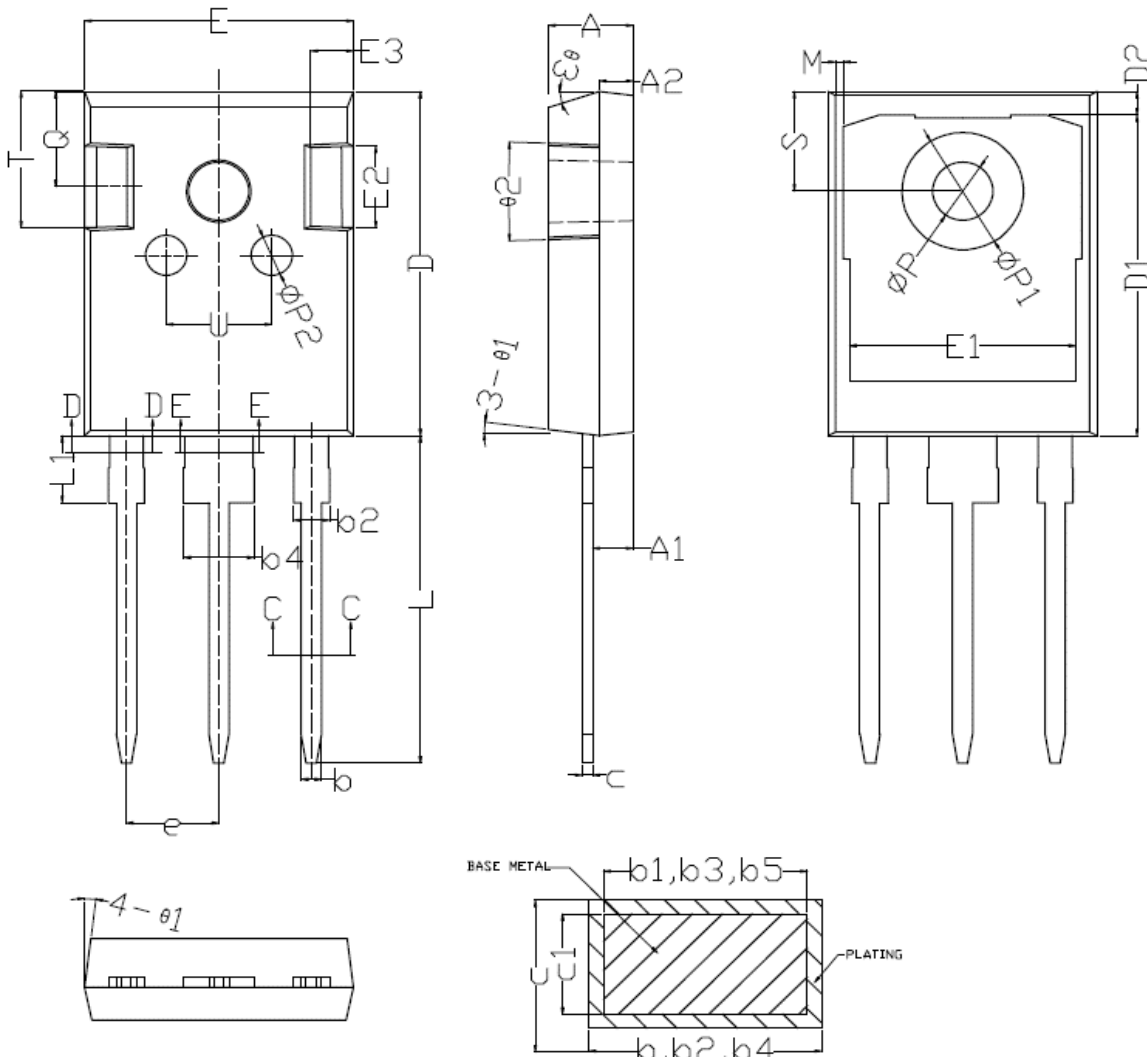
3rd Line: Lot Number(YWWXXX)

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°

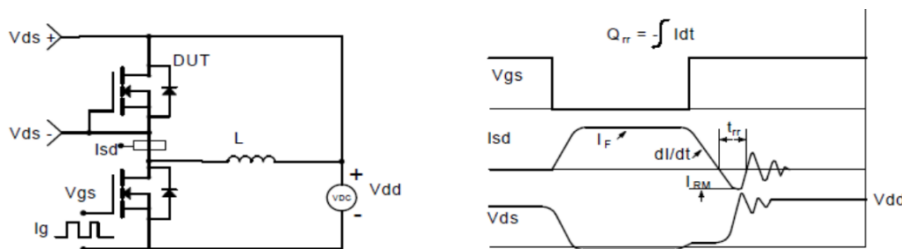
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

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