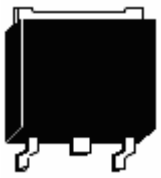
N-Channel Enhancement Mode Power MOSFET

Features:

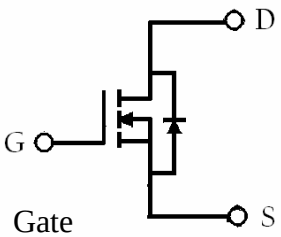
- Low Gate Charge
- Simple Drive Requirement
- Repetitive Avalanche Rated
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free package

TO-252(DPAK)



G D S

BV_{DSS}		100V
I_D		50A
$R_{DSON(TYP)}$	V_{GS}=10V, I_D=30A	19mΩ
	V_{GS}=6V, I_D=20A	23mΩ



G：Gate
D：Drain
S：Source

Ordering Information

Device	Package	Shipping
KJN2510	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (T_C=25°C, unless otherwise noted)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @ T_C=25°C, V_{GS}=10V		I_D	50	A
Continuous Drain Current @ T_C=100°C, V_{GS}=10V		I_D	35	
Pulsed Drain Current (Note 1)		I_{DM}	150	
Avalanche Current		I_{AS}	30	
Avalanche Energy @ L=0.1mH, I_D=30A, R_G=25Ω		E_{AS}	45	mJ
Repetitive Avalanche Energy@ L=0.05mH (Note 2)		E_{AR}	22.5	
Power Dissipation	T_C=25°C	P_D	130	W
	T_C=100°C		65	
Operating Junction and Storage Temperature		Tj, Tstg	-55~+175	°C

Note : 1. Pulse width limited by maximum junction temperature
2. Duty cycle ≤ 1%

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	1.15	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	75	°C/W

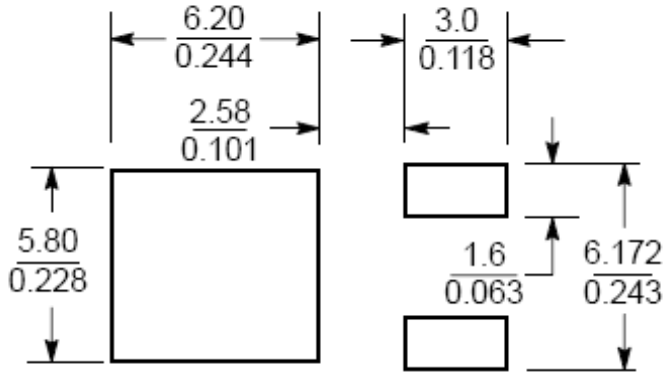
Characteristics (T_C=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	100	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	2.0	3	4.0	V	V_{DS} = V_{GS}, I_D=250μA
G_{FS}	-	38	-	S	V_{DS} =5V, I_D=30A
I_{GSS}	-	-	±100	nA	V_{GS}=±20
I_{DSS}	-	-	1	μA	V_{DS} =80V, V_{GS} =0V
	-	-	25		V_{DS} =70V, V_{GS} =0V, Tj=125°C
*$R_{DS(ON)}$	-	19	30	mΩ	V_{GS} =10V, I_D=30A
	-	23	35		V_{GS} =6V, I_D=20A
Dynamic					
*Qg	-	24	-	nC	I_D=30A, V_{DS}=50V, V_{GS}=10V
*Qgs	-	6.5	-		
*Qgd	-	8.1	-		
*$t_{d(ON)}$	-	20	-	ns	V_{DS}=50V, I_D=1A, V_{GS}=10V, R_G=6Ω
*tr	-	100	-		
*$t_{d(OFF)}$	-	100	-		
*t_f	-	55	-		

Ciss	-	2003	-	pF	V_{GS}=0V, V_{DS}=25V, f=1MHz
Coss	-	218	-		
Crss	-	128	-		
Rg	-	2	-	Ω	V_{GS}=15mV, V_{DS}=0V, f=1MHz
Source-Drain Diode					
*I_S	-	-	50	A	
*I_{SM}	-	-	150		
*V_{SD}	-	-	1.3	V	I_F=I_S, V_{GS}=0V
*trr	-	120	-	ns	I_F=25A, V_{GS}=0, dI/dt=100A/μs
*Qrr	-	380	-	nC	

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

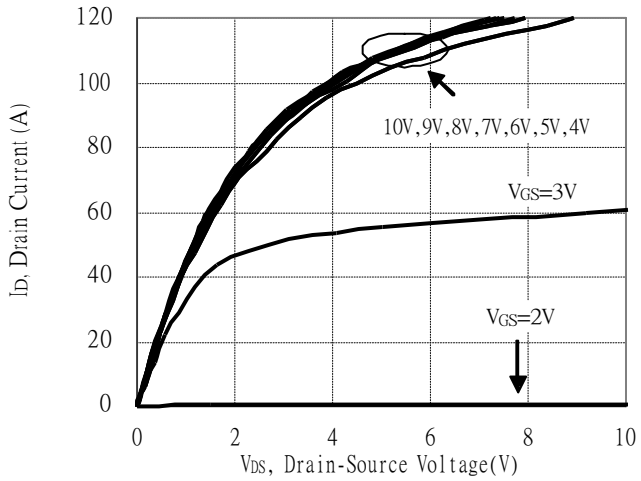
Recommended soldering footprint



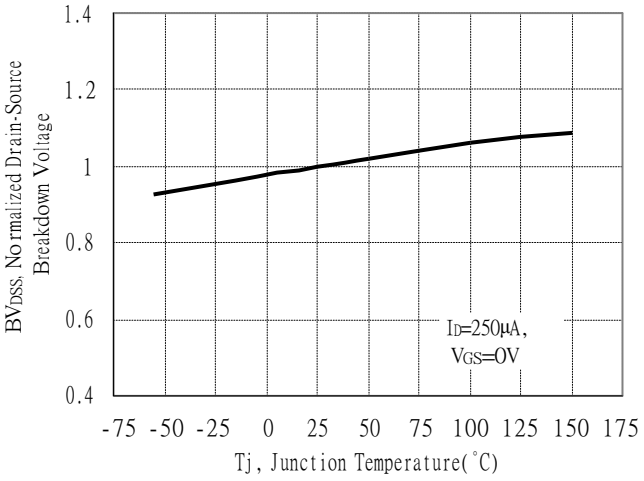
Unit (mm / inch)

Typical Characteristics

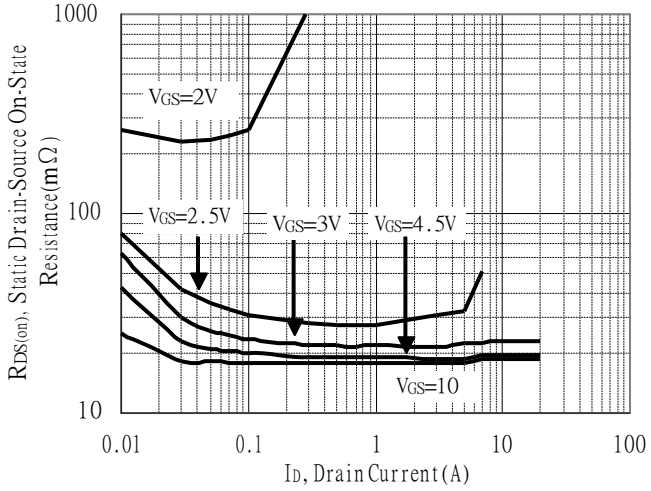
Typical Output Characteristics



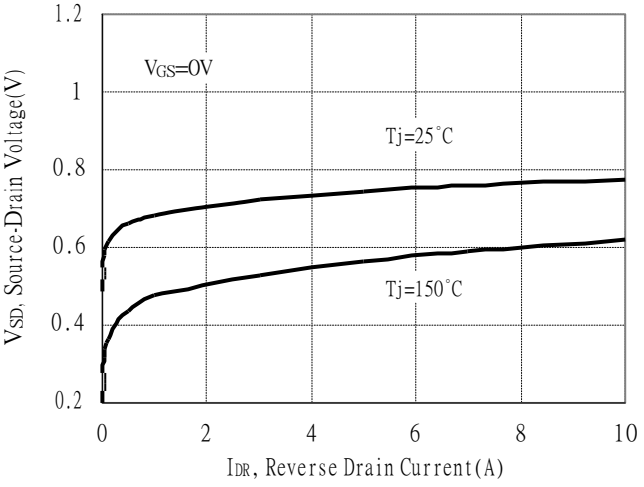
Brekdown Voltage vs Ambient Temperature



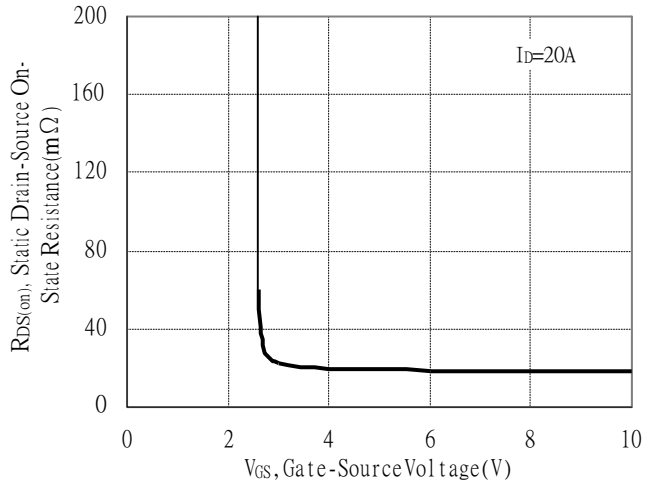
Static Drain-Source On-State resistance vs Drain Current



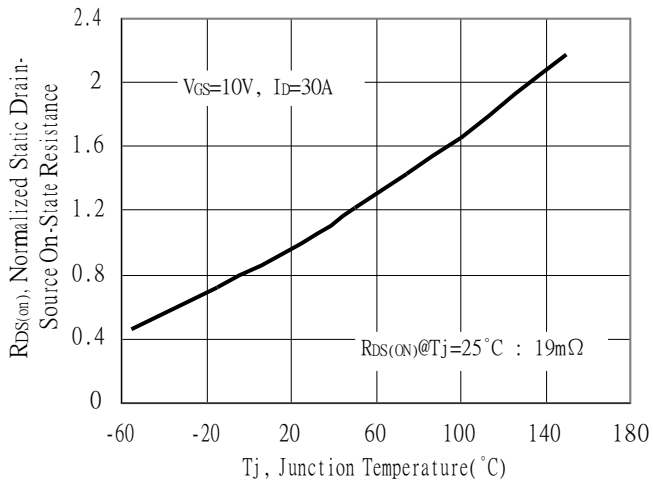
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

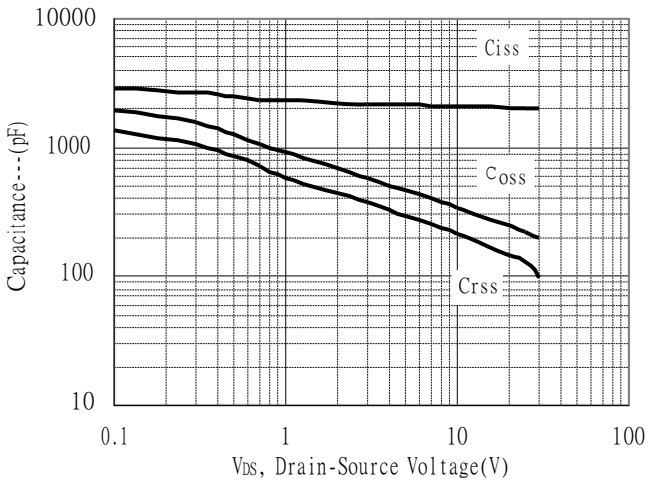


Drain-Source On-State Resistance vs Junction Tempearture

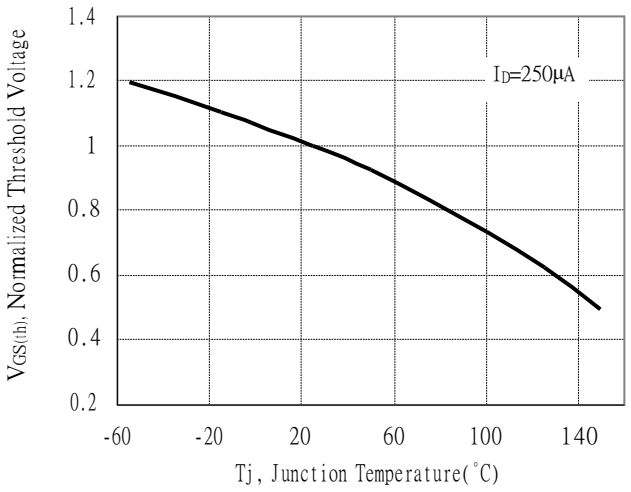


Typical Characteristics (Cont.)

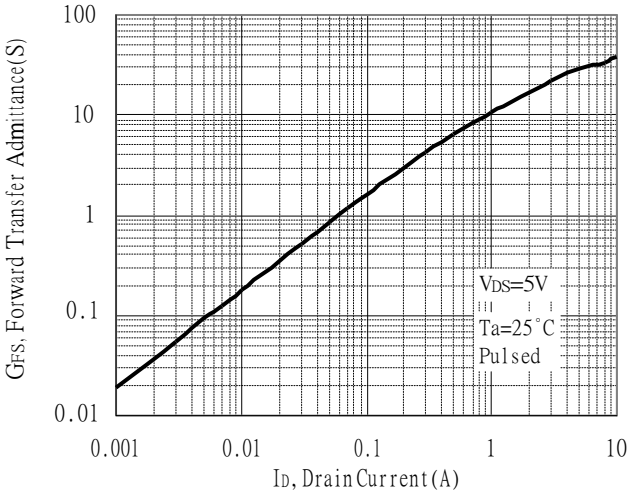
Capacitance vs Drain-to-Source Voltage



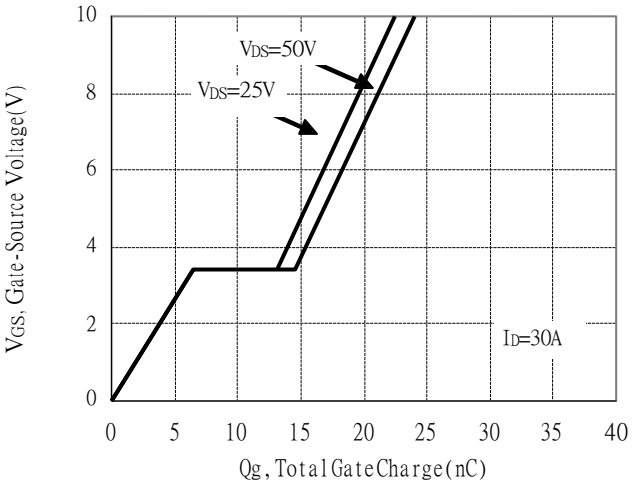
Threshold Voltage vs Junction Tempearture



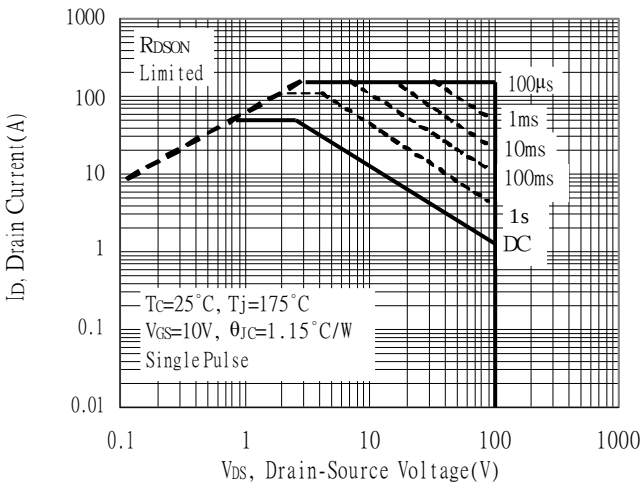
Forward Transfer Admittance vs Drain Current



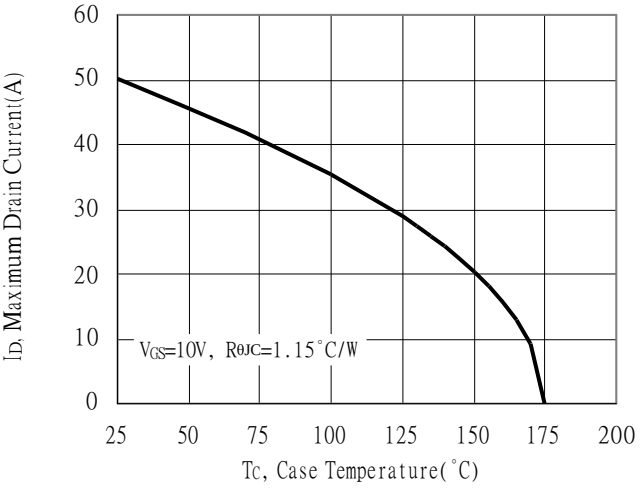
Gate Charge Characteristics



Maximum Safe Operating Area

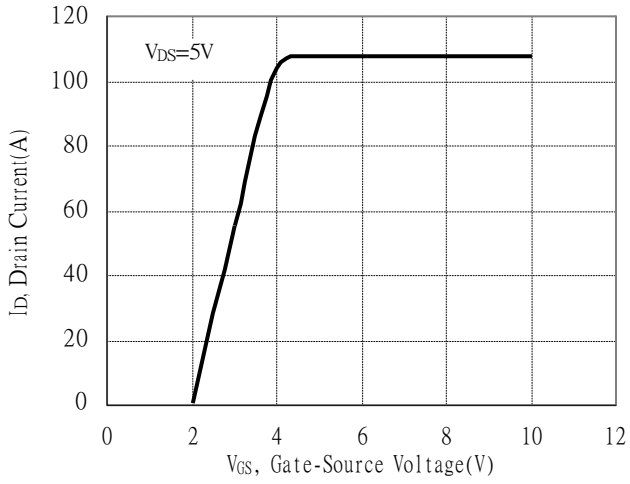


Maximum Drain Current vs Case Temperature

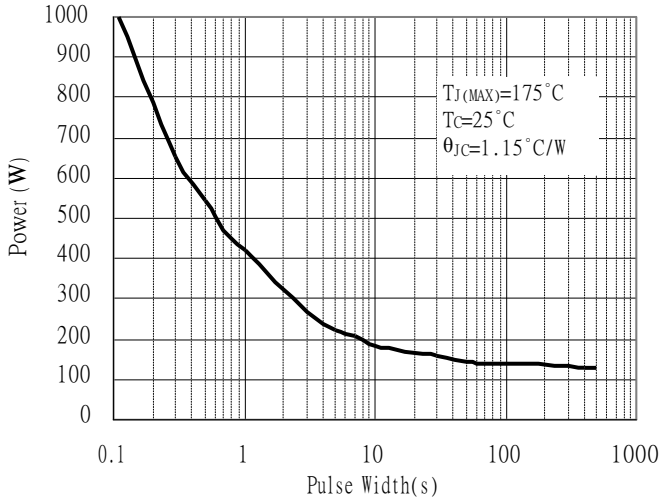


Typical Characteristics (Cont.)

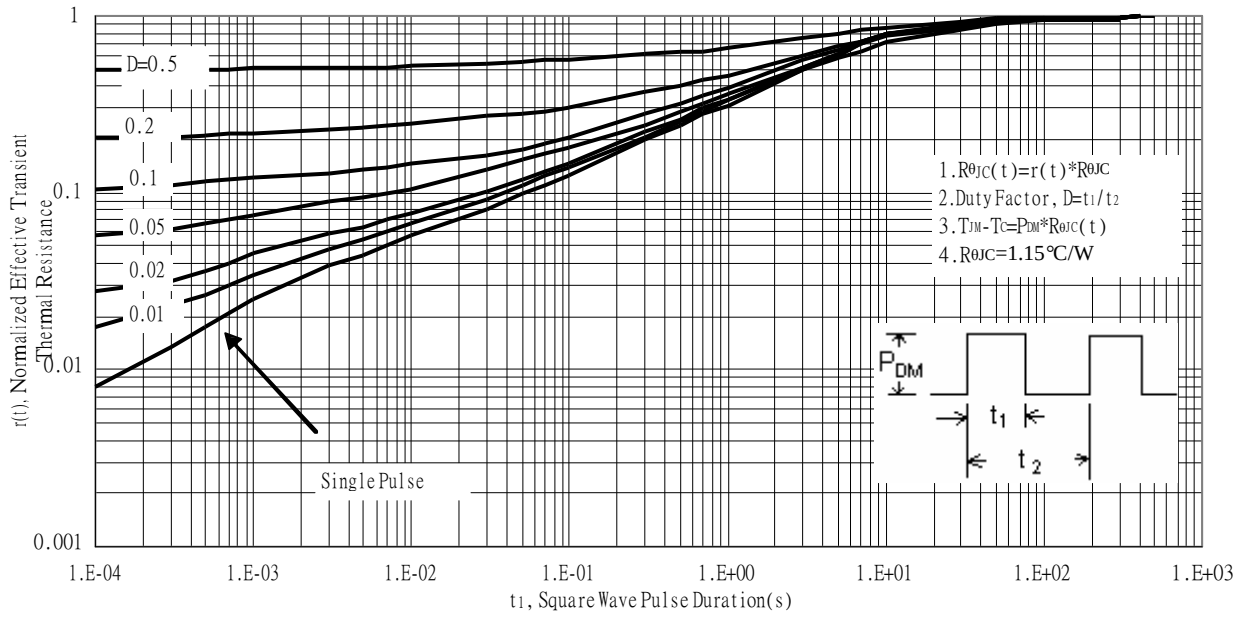
Typical Transfer Characteristics



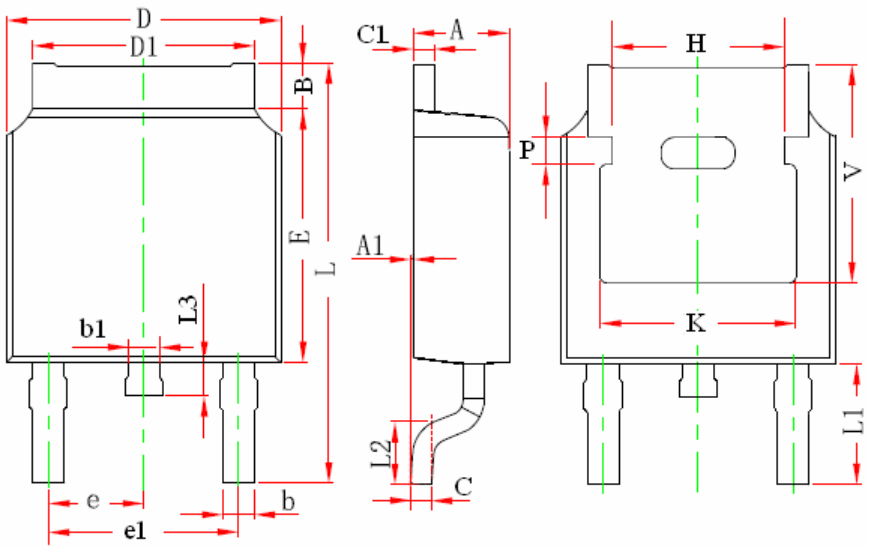
Single Pulse Power Rating, Junction to Case

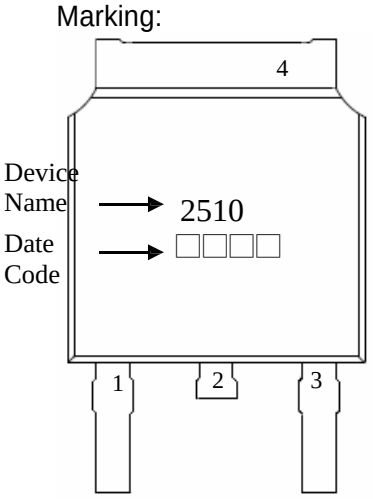


Transient Thermal Response Curves



TO-252 Dimension





3-Lead TO-252 Plastic Surface Mount
Package Code: J3

Style: Pin 1.Gate 2.Drain 3.Source
4.Drain

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e	0.086	0.094	2.186	2.386
A1	0.000	0.005	0.000	0.127	e1	0.172	0.188	4.372	4.772
B	0.039	0.048	0.990	1.210	H	0.163	REF	4.140	REF
b	0.026	0.034	0.660	0.860	K	0.190	REF	4.830	REF
b1	0.026	0.034	0.660	0.860	L	0.386	0.409	9.800	10.400
C	0.018	0.023	0.460	0.580	L1	0.114	REF	2.900	REF
C1	0.018	0.023	0.460	0.580	L2	0.055	0.067	1.400	1.700
D	0.256	0.264	6.500	6.700	L3	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	P	0.026	REF	0.650	REF
E	0.236	0.244	6.000	6.200	V	0.211	REF	5.350	REF