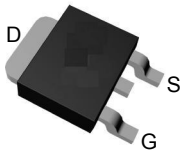
N-Channl Enhancement Mode MOSFET

- 30V/100A
- $R_{DS(ON)}$=3mΩ (typ) @VGS=10V
  $R_{DS(ON)}$=4.5mΩ (typ) @VGS=4.5V
- 100% UIS & RG Tested
- Reliableand Rugged
- Lead Freeand Green Devices Available
  (RoHS Compliant)

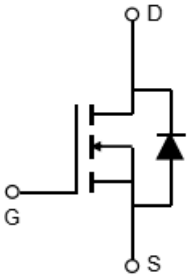
Applications

- Power Management for Industrial
  Converters

Pin Configuration



Top View of TO-252-2



N-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	
I_D	Continuous Drain Current	Tc=25°C	100	A
		Tc=100°C	39	
I_{DM}	Pulsed Drain Current	Tc=25°C	160	
P_D	Power Dissipation	T_A=25°C	3.6	W
P_D	Power Dissipation	T_C=25°C	52	W
T_{STG}, T_j	Storage Temperature Range		-55 to 150	°C
I_D	Continuous Drain Current	T_A=25°C	18	A
		T_A=70°C	14	

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} =24V, V_{GS}=0V	-	-	1	μA
		Tj=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_{DS}=250μA	1	-	2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=20A	-	3	4.5	mΩ
		V_{GS}=4.5V, I_{DS}=15A	-	4.5	6.8	
Body Diode Characteristics						
V_{SD}	Diode Forward Voltage	I_{SD}=40A, V_{GS}=0V	-	0.7	1.3	V
Dynamic Characteristics[e]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS} =10V, Frequency=1.0MHz	-	3906	-	pF
C_{oss}	Output Capacitance		-	155	-	
C_{rss}	Reverse transfer capacitance		-	135	-	
$t_{d(ON)}$	Turn-on delay Time	V_{GS}=10V ,V_{DS}=15V R_G=1.8Ω, I_D=20A , R_L=30Ω	-	8	-	nS
t_r	Turn-on rise Time		-	9	-	
$t_{d(OFF)}$	Turn-off delay Time		-	32	-	
t_f	Turn-off rise Time		-	6	-	
Gate Charge Characteristics[e]						
Q_g	Total Gate Charge	V_{DS} =15V, V_{GS}=10V, I_{DS}=20A	-	23	-	
Q_{gs}	Gate-Source Charge		-	5	-	
Q_{gd}	Gate-Drain Charge		-	3	-	

Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%

2.Static parameters are based on package level with recommended wire bonding

TYPICAL CHARACTERISTICS (25℃ Unless Note)

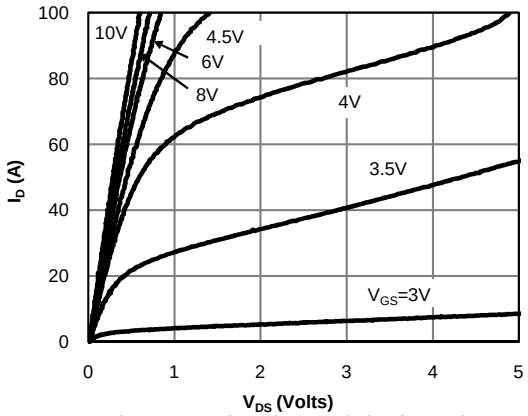


Fig 1: On-Region Characteristics (Note E)

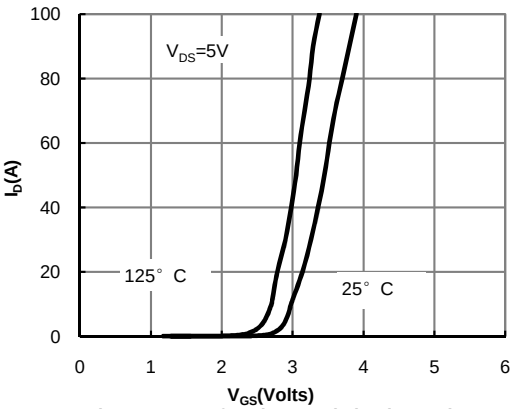


Figure 2: Transfer Characteristics (Note E)

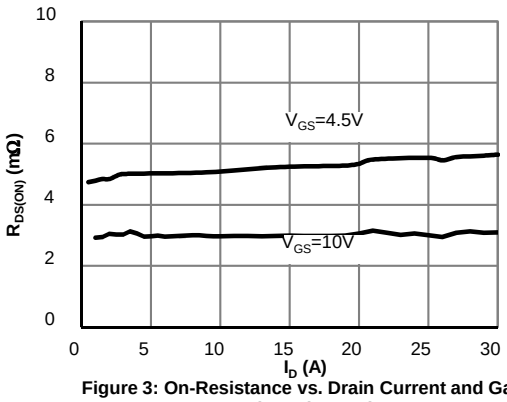


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

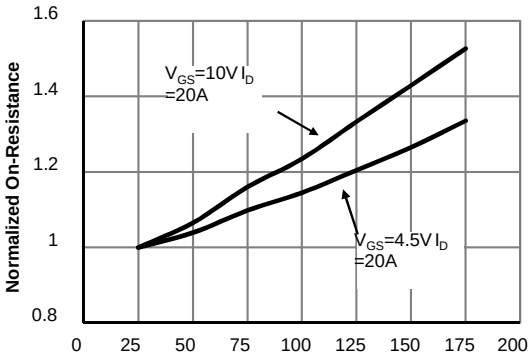


Figure 4: On-Resistance vs. Junction Temperature (Note E)

TYPICAL CHARACTERISTICS (continuous)

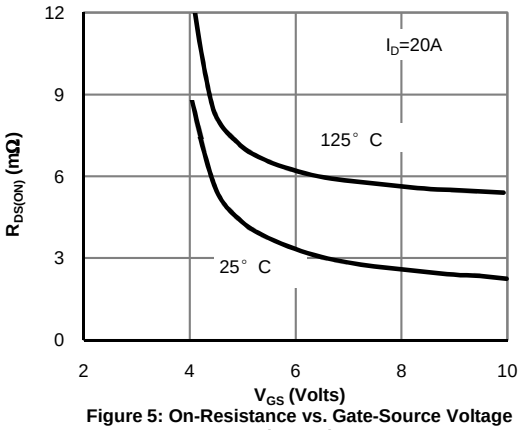


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

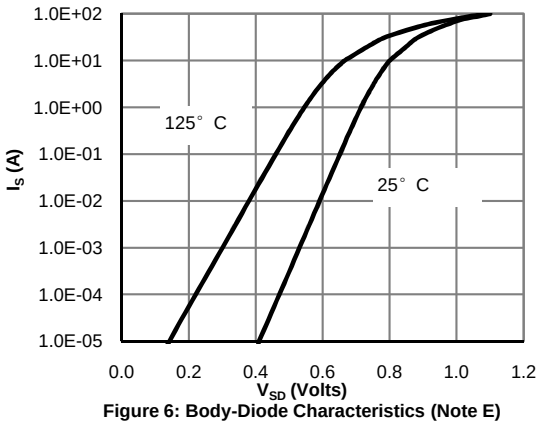


Figure 6: Body-Diode Characteristics (Note E)

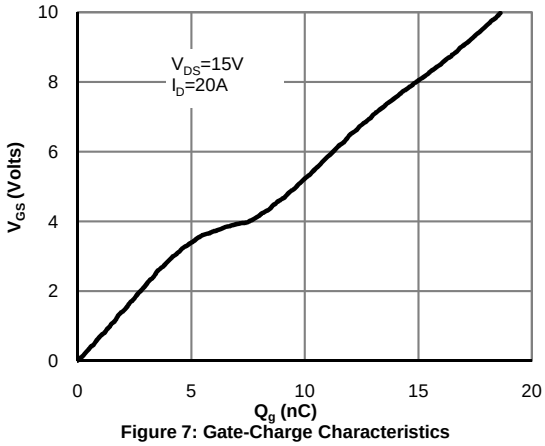


Figure 7: Gate-Charge Characteristics

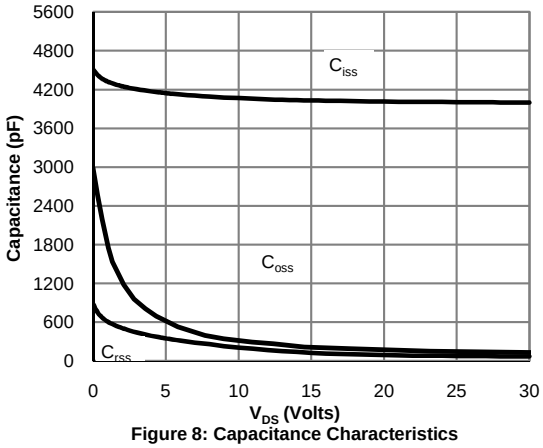


Figure 8: Capacitance Characteristics

TYPICAL CHARACTERISTICS (continuous)

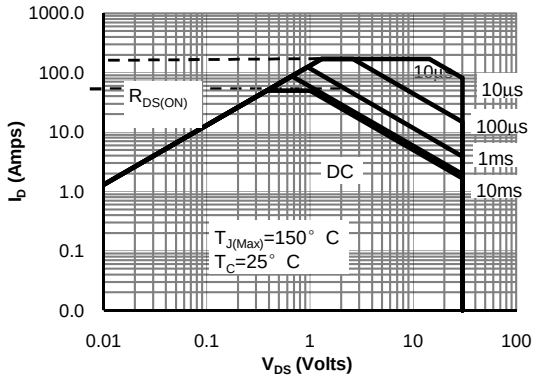


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

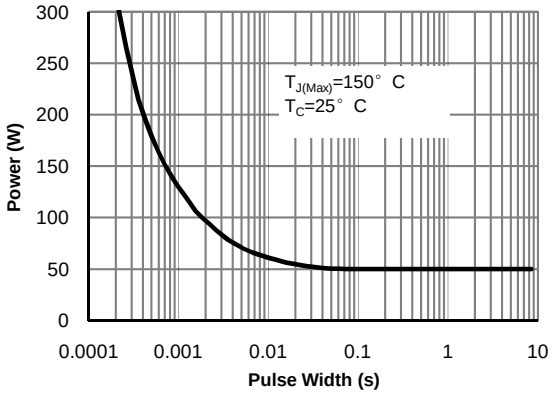


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

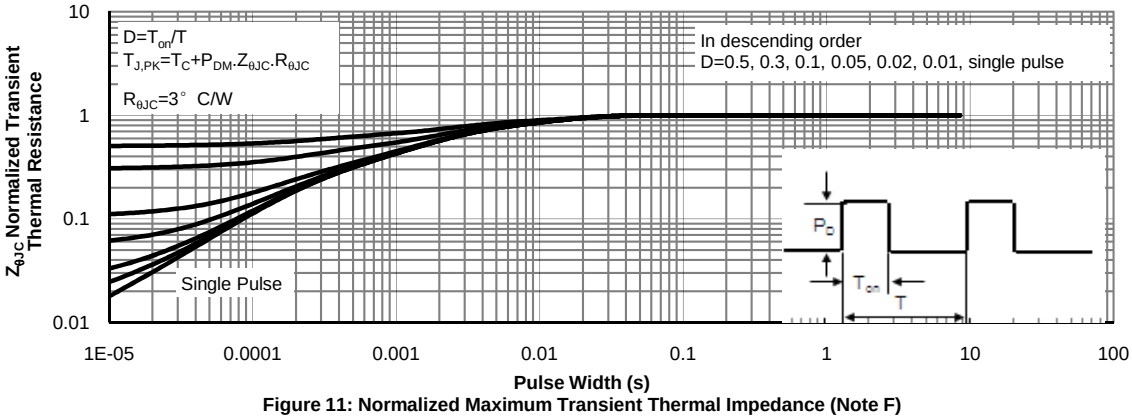
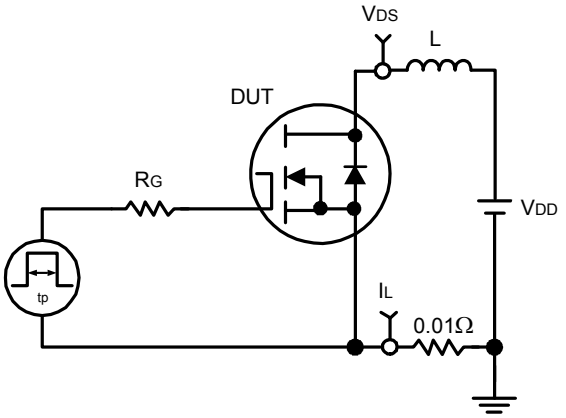
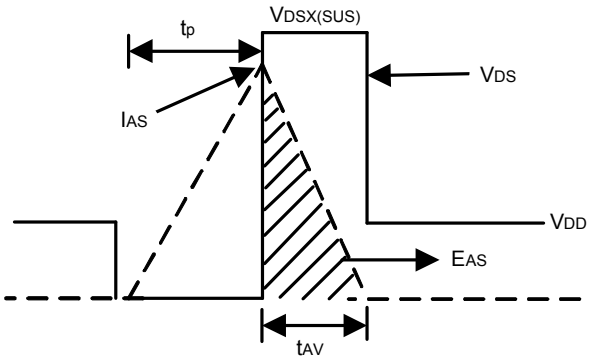


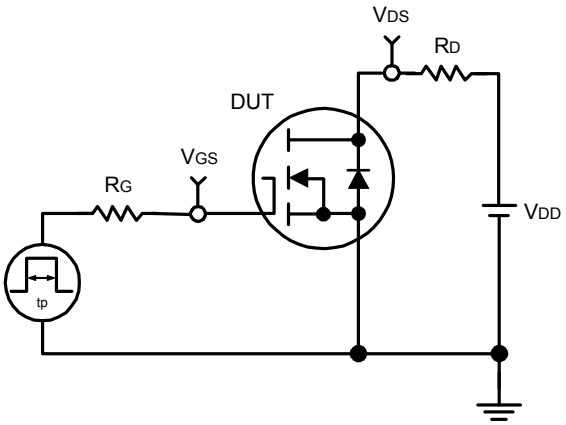
Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

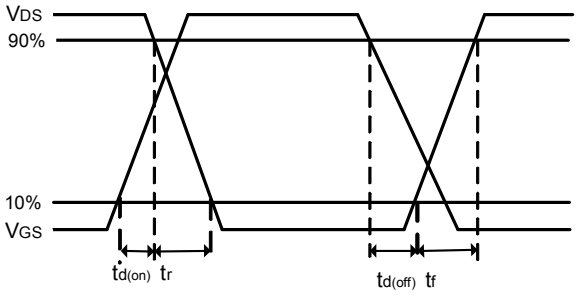
Avalanche Test Circuit and Waveforms





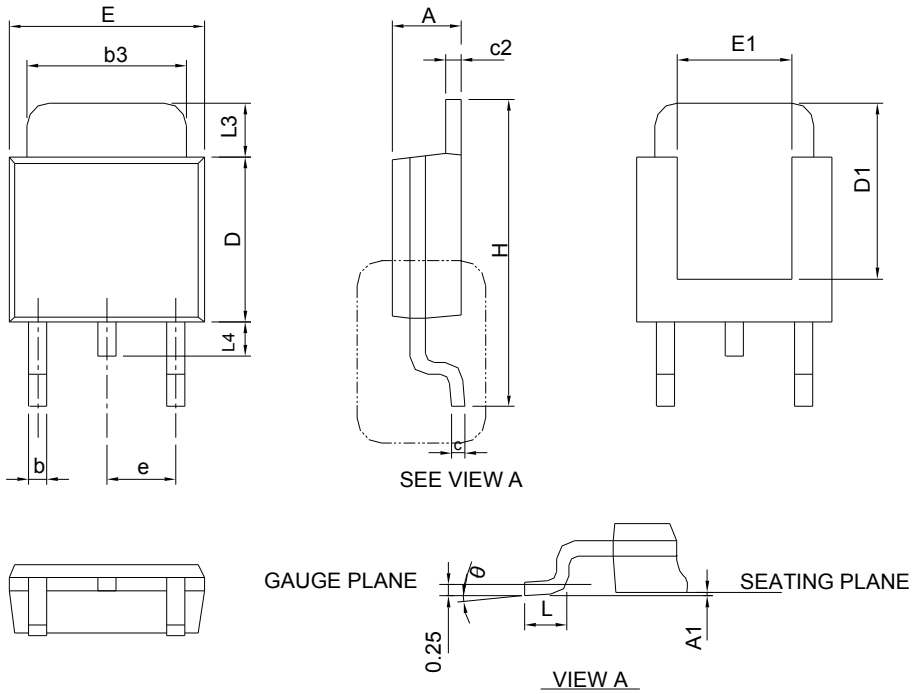
Switching Time Test Circuit and Waveforms





Package Information

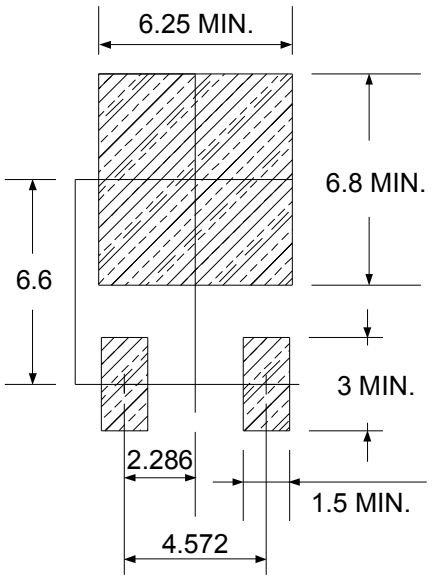
TO-252-2



SYMBOL	TO-252-2			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.18	2.39	0.086	0.094
A1	-	0.13	-	0.005
b	0.50	0.89	0.020	0.035
b3	4.95	5.46	0.195	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.89	0.018	0.035
D	5.33	6.22	0.210	0.245
D1	4.57	6.00	0.180	0.236
E	6.35	6.73	0.250	0.265
E1	3.81	6.00	0.150	0.236
e	2.29 BSC		0.090 BSC	
H	9.40	10.41	0.370	0.410
L	0.90	1.78	0.035	0.070
L3	0.89	2.03	0.035	0.080
L4	-	1.02	-	0.040
θ	0°	8°	0°	8°

Note : Follow JEDEC TO-252-2 .

RECOMMENDED LAND PATTERN



UNIT: mm