

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	17mΩ@10V	45A

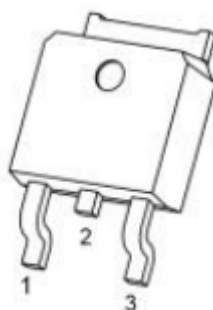
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Applications

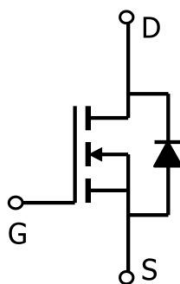
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

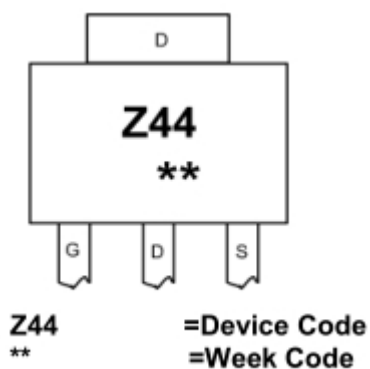


TO-252(G:1 D:2 S:3)

Circuit diagram



Marking



Absolute maximum ratings

($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 25	V
Continuous Drain Current ¹ ($T_C=25^{\circ}\text{C}$)	I_D	45	A
Pulsed Drain Current ²	I_{DM}	108	A
Single Pulse Avalanche Energy ³	E_{AS}	65	mJ
Total Power Dissipation($T_C=25^{\circ}\text{C}$)	P_D	90	W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	1.38	$^{\circ}\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$

Electrical characteristics

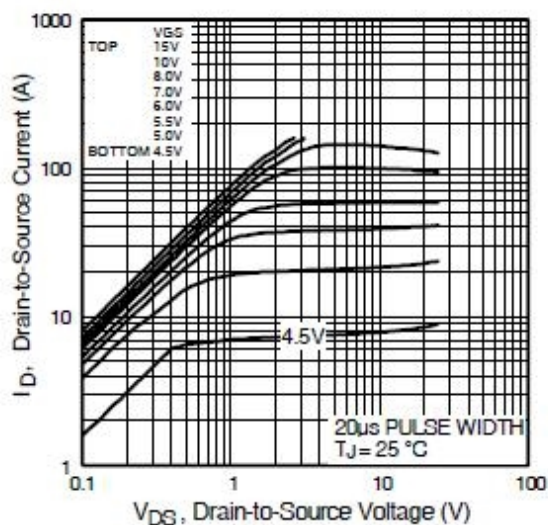
(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Bvdss Temperature Coefficient	$\Delta BV_{DSS}/\Delta T$	$I_D = 1mA,$ Reference 25°C		0.058		V/°C
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0V$			25	uA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 25V, V_{DS} = 0V$			±100	uA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 25A$		17	22	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1MHz$		1476		pF
Output capacitance	C_{oss}			354		
Reverse transfer capacitance	C_{rss}			90		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 44V, V_{GS} = 10V,$ $I_D = 25A$		36		nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			9		
Turn-on Delay Time	$T_{d(on)}$	$V_{DD} = 28V, V_{GS} = 10V,$ $R_G = 12\Omega, I_D = 25A$		12		nS
Turn-on Rise Time	T_r			60		
Turn-Off Delay Time	$T_{d(off)}$			44		
Turn-Off Fall Time	t_f			45		

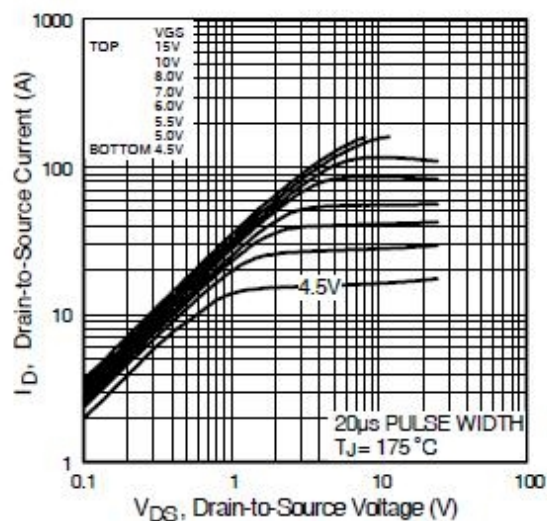
Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3. The EAS data shows Max. rating . The test condition is R_G = 25Ω , L = 34mH

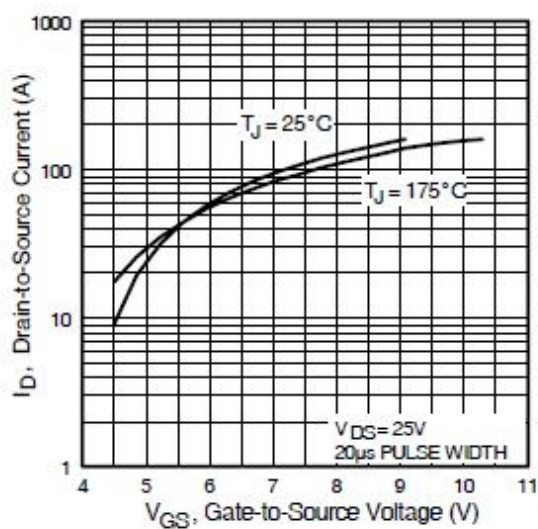
Typical Characteristics



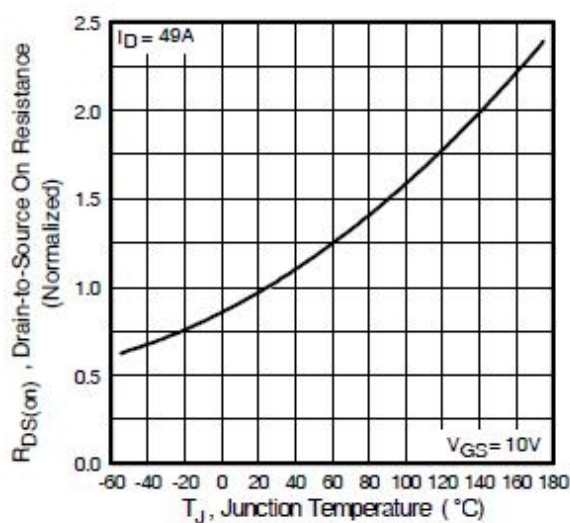
Typical Output Characteristics



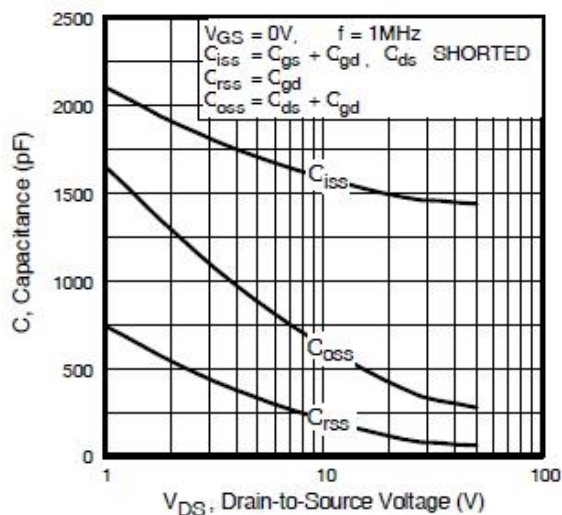
Typical Output Characteristics



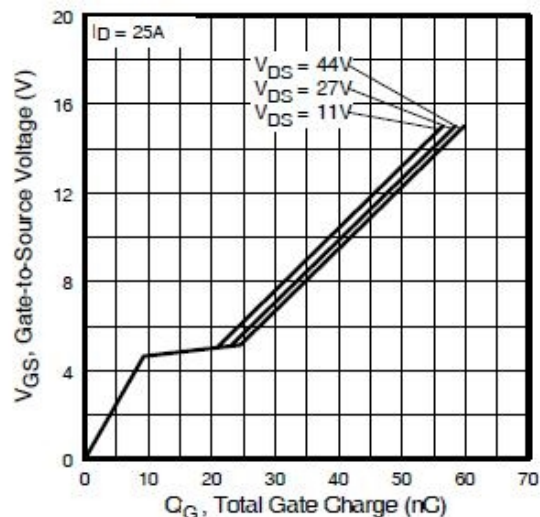
Typical Transfer Characteristics



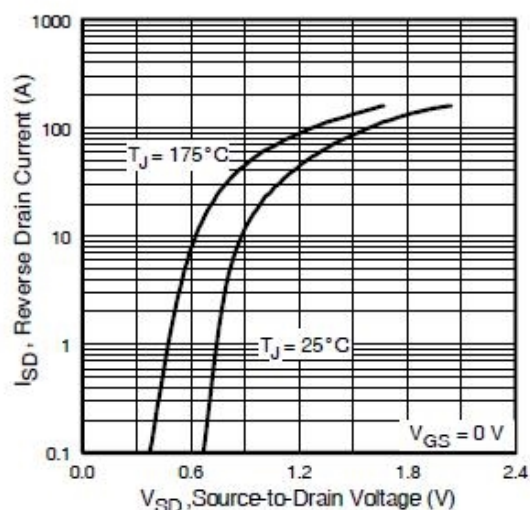
Normalized On-Resistance Vs.
Temperature



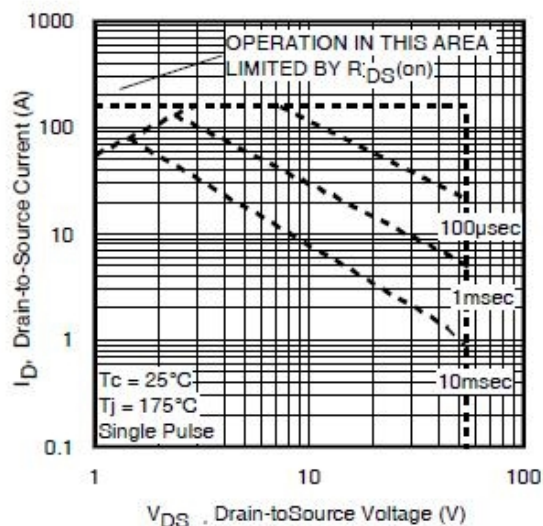
Typical Capacitance Vs. Drain-to-Source Voltage



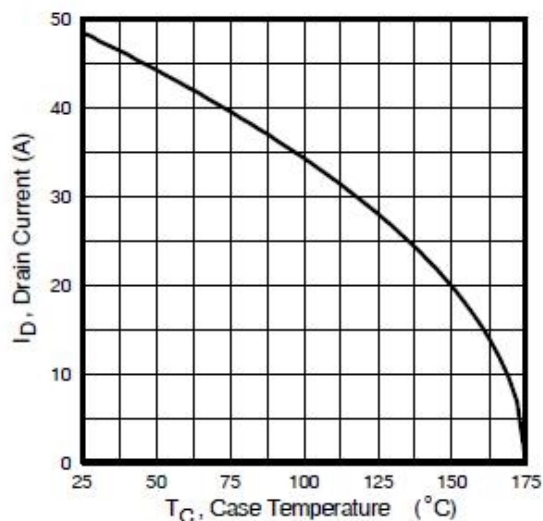
Typical Gate Charge Vs. Gate-to-Source Voltage



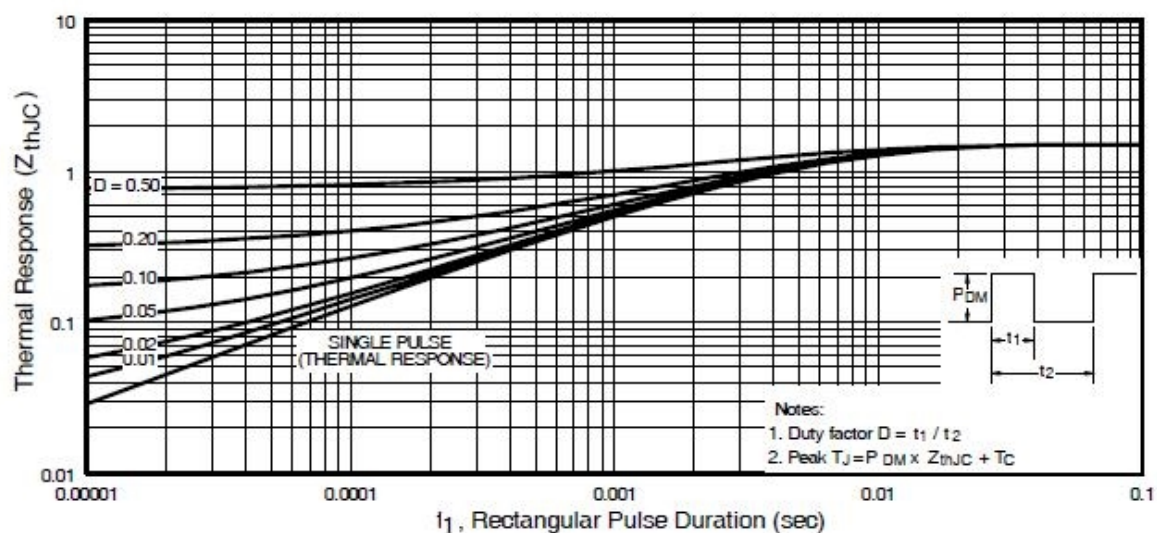
Typical Source-Drain Diode Forward Voltage



Maximum Safe Operating Area

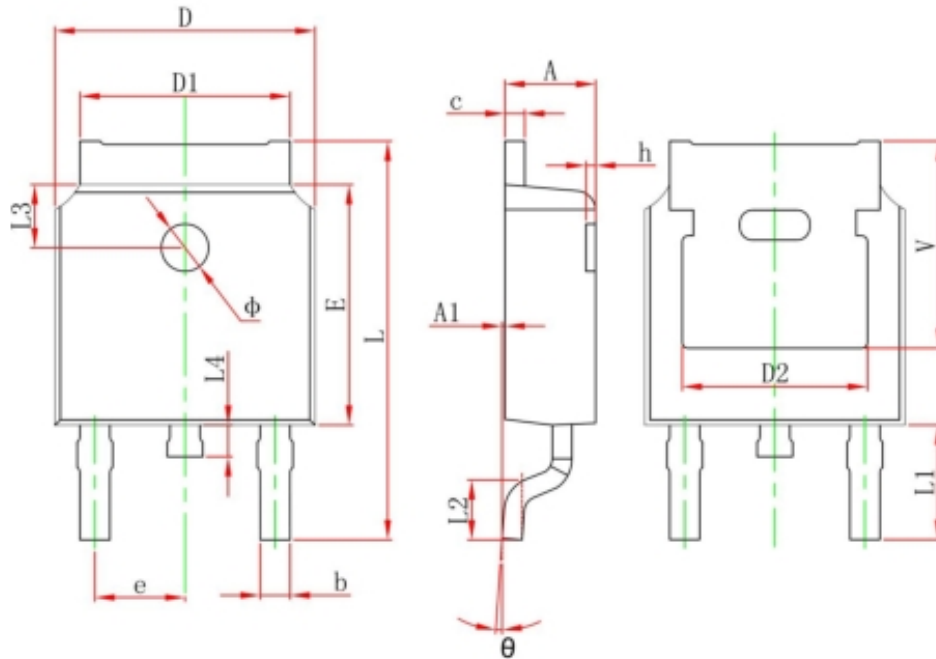


Maximum Drain Current Vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case

TO-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	