

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
500V	0.21Ω@10V	25A

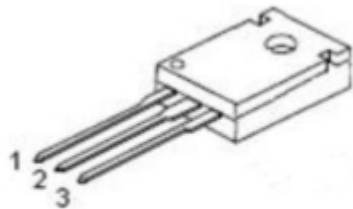
Feature

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

Application

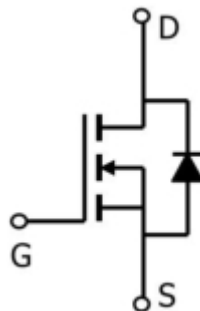
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

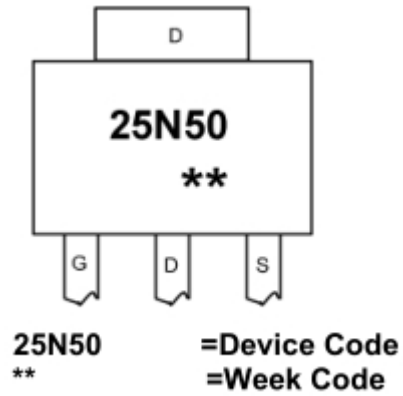


TO-247(1:G 2:D 3:S)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V _{DS}	500	V
Gate source voltage	V _{GS}	±30	V
Continuous drain current(Tc=25°C)	I _D	25	A
Pulsed drain current ²	I _{DM}	100	A
Single pulsed avalanche energy ³	E _{AS}	1215	mJ
Total Power Dissipation(TC=25°C)	P _D	300	W
Thermal resistance, junction-case ¹	R _{θJC}	0.42	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operation and storage temperature	T _J	-55 to 150	°C

Electrical characteristics

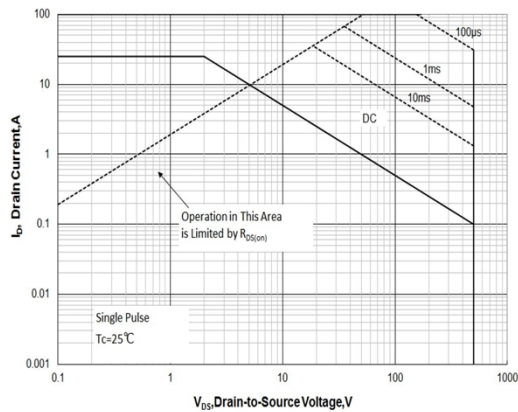
(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$BV_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	500			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = 400V, V_{GS} = 0V, T_J = 25^{\circ}C$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 100	μA
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 12A$		0.21	0.26	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		3468		pF
Output Capacitance	C_{oss}			217		
Reverse Transfer Capacitance	C_{rss}			12		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS} = 400V, V_{DS} = 10V, I_D = 20A$		63		pF
Gate-Source Charge	Q_{gs}			16		
Gate-Drain Charge	Q_{gd}			24		
Turn-On Delay Time	$T_{d(on)}$	$V_{DD} = 250V, V_{GS} = 10V, R_G = 25\Omega, I_D = 12A$		37		nS
Rise Time	T_r			64		
Turn-Off Delay Time	$T_{d(off)}$			86		
Fall Time	T_f			46		

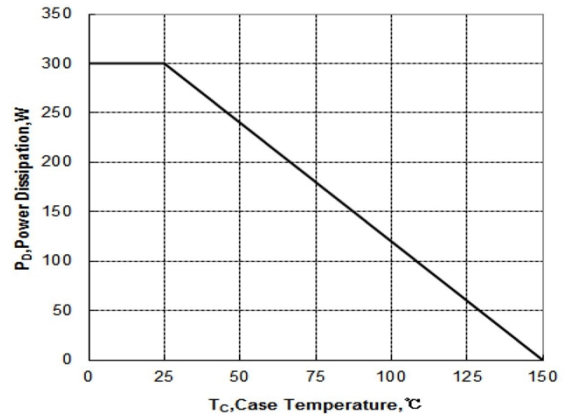
Note:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. The EAS data shows Max. rating. The test condition is R_G = 30Ω, L = 10mH

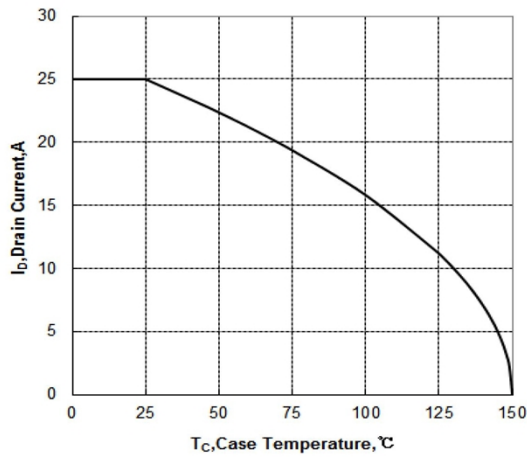
Typical Characteristics



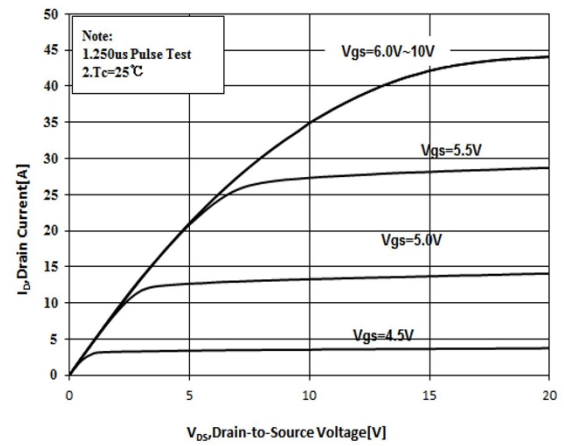
Maximum Forward Bias Safe Operating Area



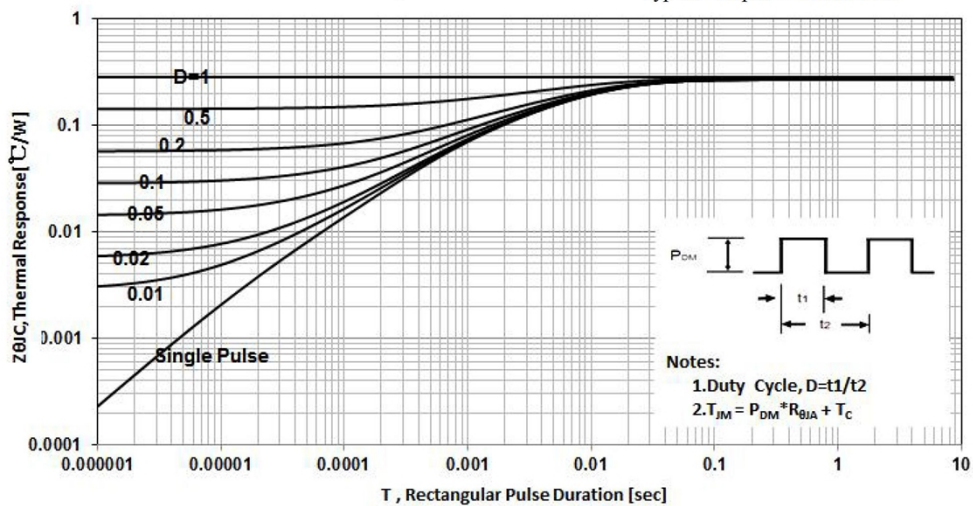
Maximum Power dissipation vs Case Temperature



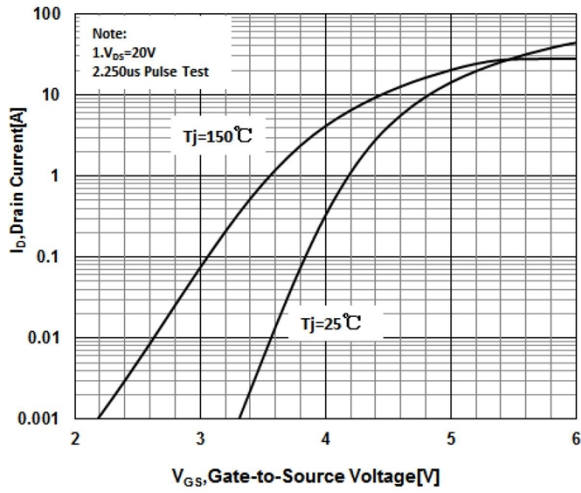
Maximum Continuous Drain Current vs Case Temperature



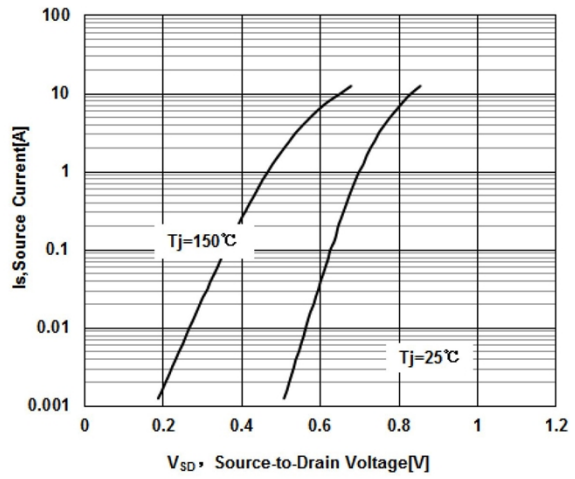
Typical Output Characteristics



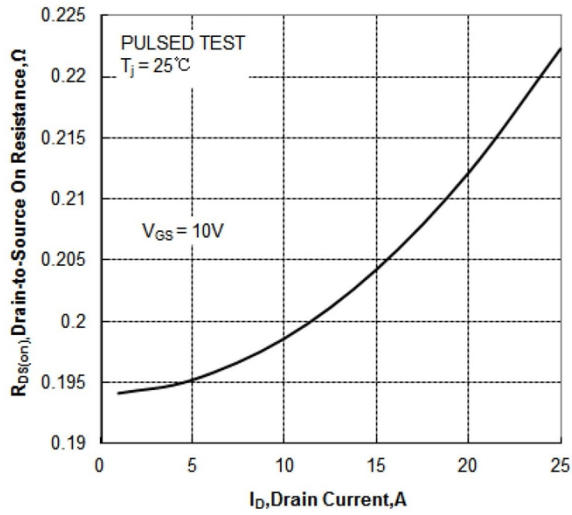
Maximum Effective Thermal Impedance , Junction to Case



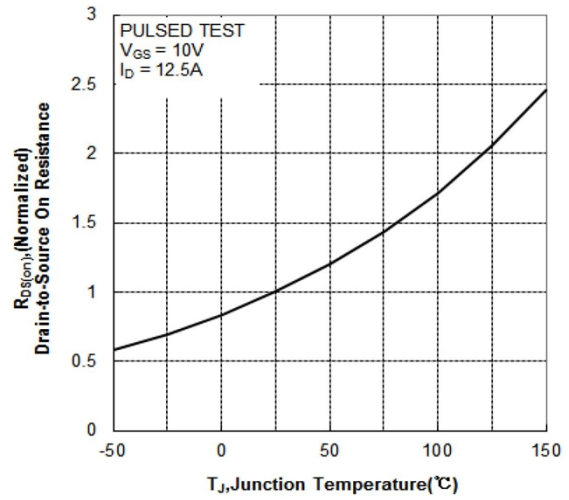
Typical Transfer Characteristics



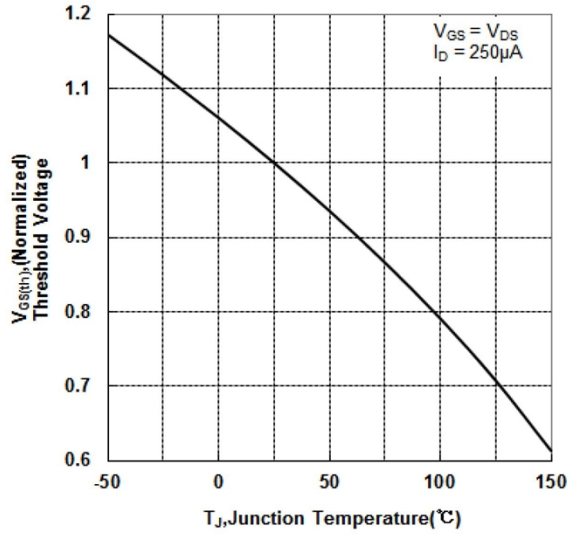
Typical Body Diode Transfer Characteristics



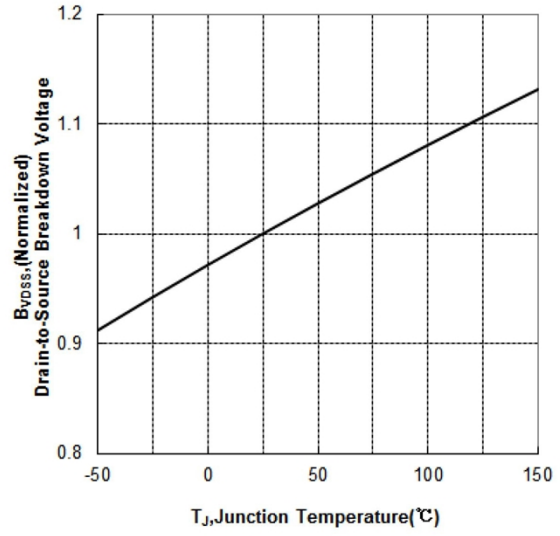
Typical Drain to Source ON Resistance
vs Drain Current



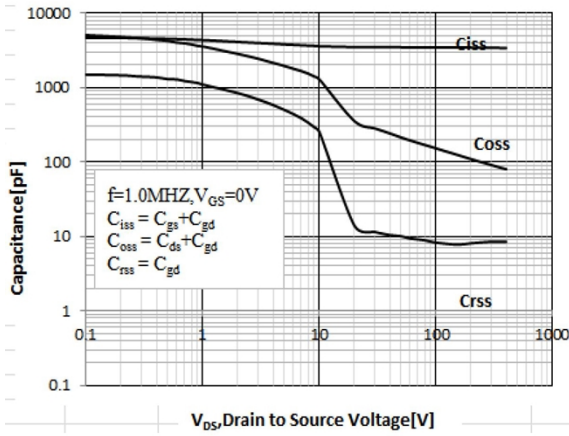
Typical Drian to Source on Resistance
vs Junction Temperature



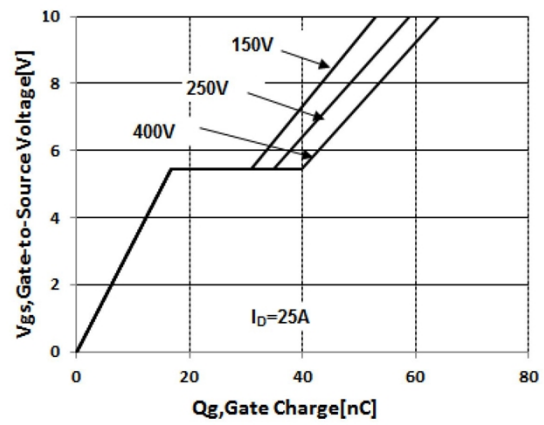
Typical Theshold Voltage vs Junction Temperature



Typical Breakdown Voltage vs Junction Temperature

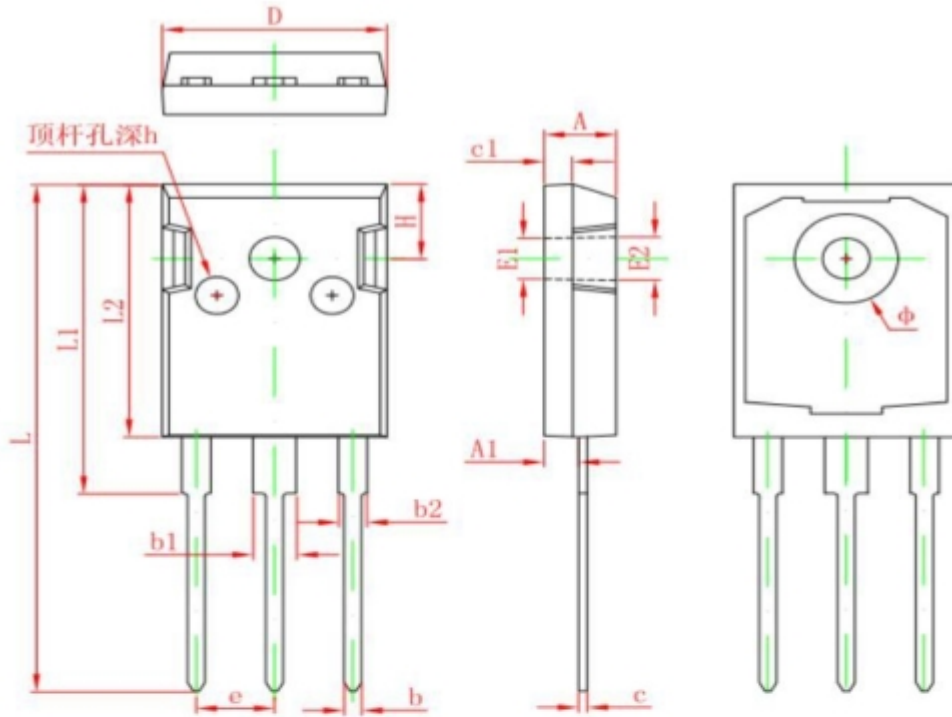


Typical Capacitance vs Drain to Source Voltage



Typical Gate Charge vs Gate to Source Voltage

TO-247 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF.		0.138 REF.	
E2	3.600 REF.		0.142 REF.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
e	7.100	7.300	0.280	0.287
ϕ	5.450 TYP.		0.215 TYP.	
H	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012