



N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	60 V
I_D	90 A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	7.2 mohm
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	8.5 mohm
100% EAS Tested	
100% V_{DS} Tested	

General Description

Trench Power MV MOSFET technology



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Electrical Characteristics (T_J=25 unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = 20V, V _{DS} =0V			100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250	1.0	1.5	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D =45A		5.8	7.2	m
		V _{GS} = 10V, I _D =15A		5.6	7.2	
		V _{GS} = 4.5V, I _D =10A		6.8	8.5	
Diode Forward Voltage	V _{SD}	I _S =45A, V _{GS} =0V		0.90	1.2	V
Maximum Body-Diode Continuous Current	I _S				90	A
Gate resistance	R _g			2.1		
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHZ		5170		pF
Output Capacitance	C _{oss}			300		
Reverse Transfer Capacitance	C _{rss}			155		
Switching Parameters						
Total Gate Charge	Q _g (10V)	V _{GS} =10V, V _{DS} =30V, I _D =20A		102		nC
Total Gate Charge	Q _g (4.5V)			48		
Gate-Source Charge	Q _{gs}			18.7		
Gate-Drain Charge	Q _{gd}			20		
Reverse Recovery Charge	Q _{rr}	I _F =20A, di/dt=100A/us		18		
Reverse Recovery Time	t _{rr}			27		
Turn-on Delay Time	t _{D(on)}	V _{GS} =10V, V _{DD} =30V, I _D =20A R _{GEN} =3		12		ns
Turn-on Rise Time	t _r			46		
Turn-off Delay Time	t _{D(off)}			90		
Turn-off fall Time	t _f			80		

A. Pulse Test: Pulse Width 300us, Duty cycle 2%.

B. The power dissipation P_D is based on T_{J(MAX)}=150, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

C. The value of R_{JA} is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25.

D. T_J=25, V_{DD}=55V, V_G=10V, L=0.5mH.



Typical Performance Characteristics

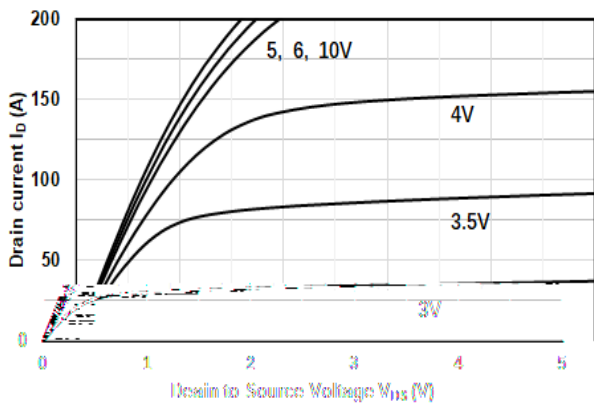


Figure1. Output Characteristics

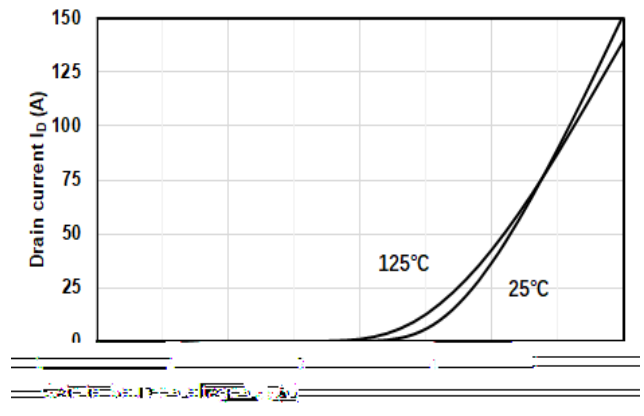


Figure2. Transfer Characteristics

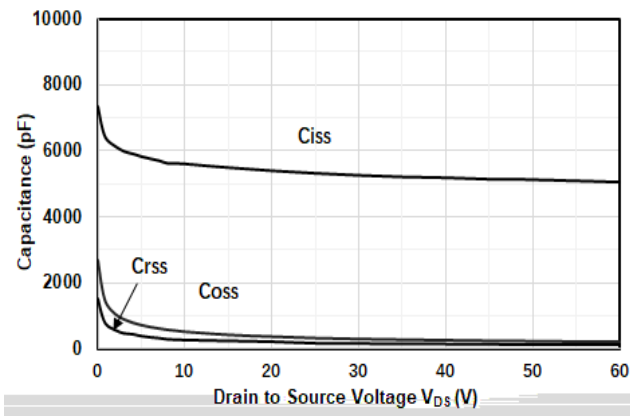


Figure3. Capacitance Characteristics

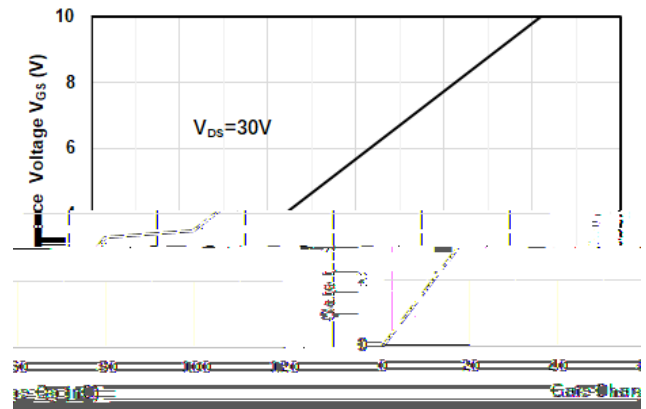


Figure4. Gate Charge

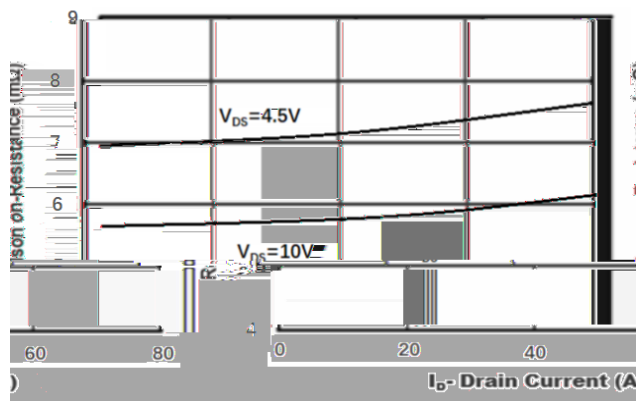


Figure5. Drain-Source on Resistance

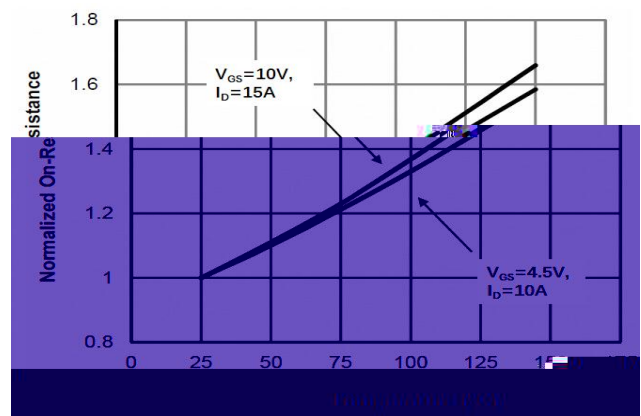


Figure6. Drain-Source on Resistance



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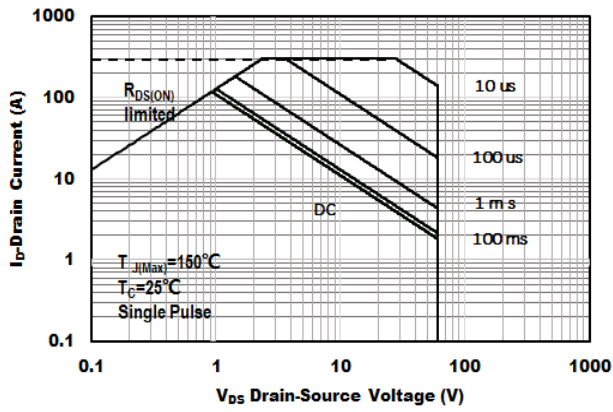


Figure 7. Safe Operation Area

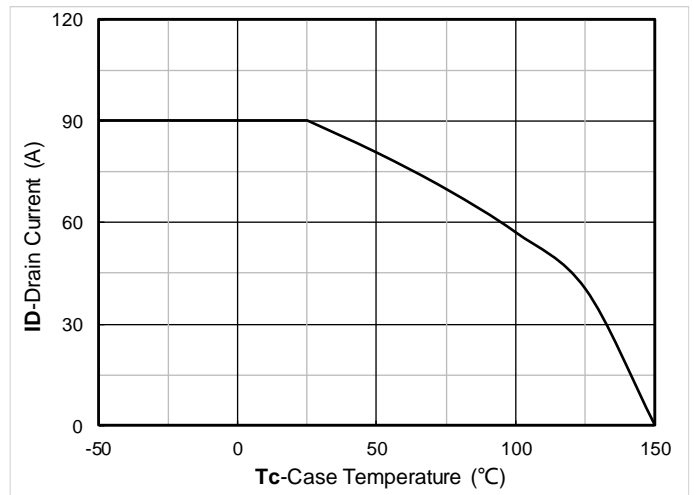


Figure 8. Current dissipation

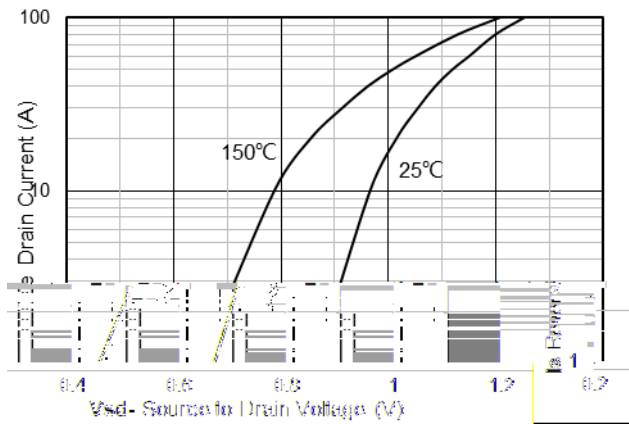


Figure 9. Forward characteristics of reverse diode

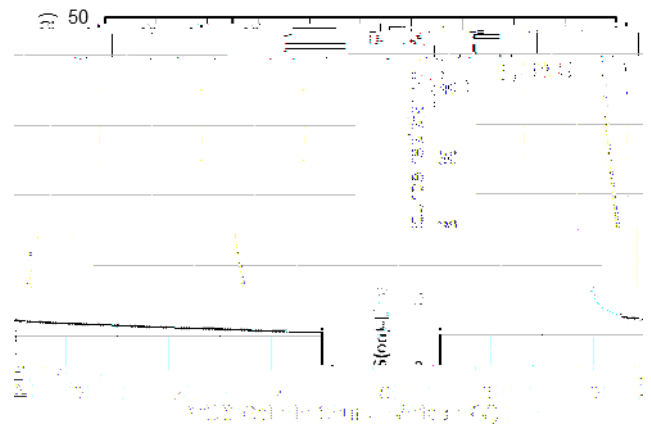


Figure 10. On-Resistance vs Gate to Source Voltage

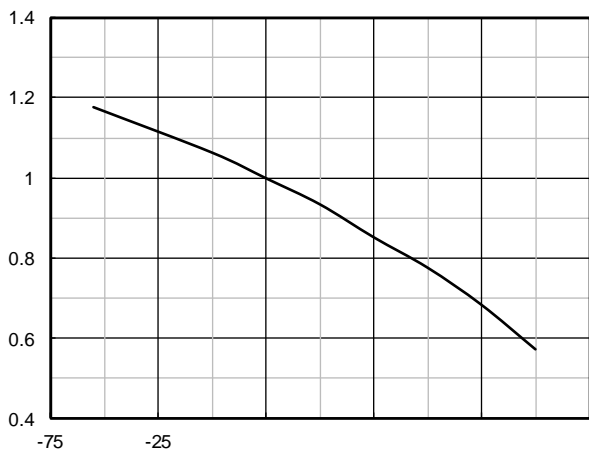


Figure 11. Normalized Threshold voltage

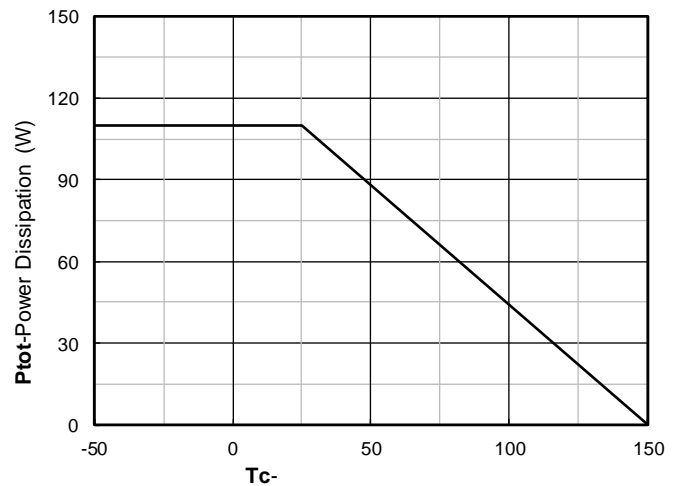


Figure 12. Power dissipation



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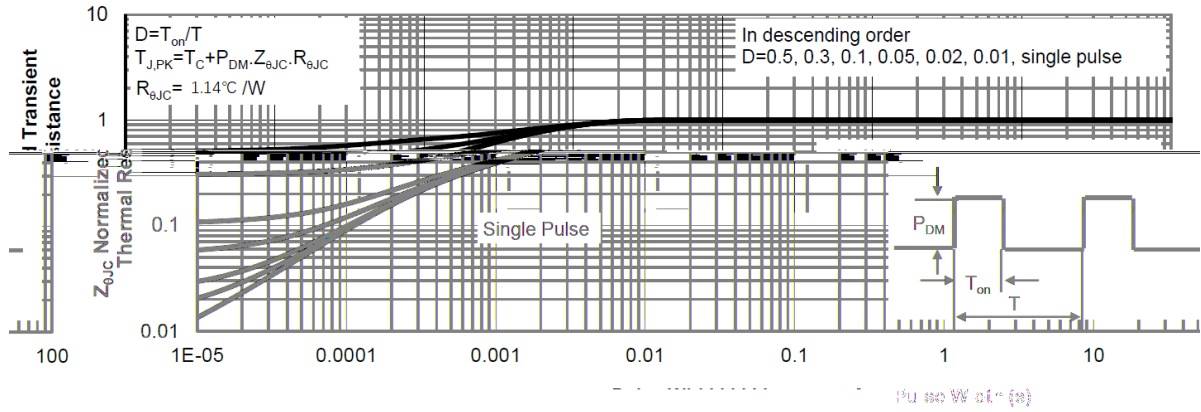


Figure13. Normalized Maximum Transient Thermal Impedance



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TO-252-B Package information

TOP VIEW

SIDE VIEW

BOTTOM VIEW

DIMENSIONS					
SYMBOL	INCHES				
	MIN.	NOM.			
A1	0.000				
A2	0.087	0.091			
A3	0.	0.039			
b	0.026	0.030			
c					
D					
D1					
D2					
E					
E1					



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