



## N-Channel Enhancement Mode Field Effect Transistor

### Product Summary

$V_{DS}$	50V
$I_D$	340mA
$R_{DS(ON)}$ ( at $V_{GS}=10V$ )	2.5ohm
$R_{DS(ON)}$ ( at $V_{GS}=4.5V$ )	3.0ohm

### General Description

Trench Power MV MOSFET technology  
Voltage controlled small signal switch  
Low input Capacitance  
Fast Switching Speed  
Low Input / Output Leakage

Epoxy Meets UL 94 V-0 Flammability Rating  
Halogen Free

### Applications

Battery operated systems  
Solid-state relays  
Direct logic-level interface TTL/CMOS

### Absolute Maximum Ratings ( $T_A=25$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	$V_{DS}$	50	V

Gate-source nBT/TT0 8.04 T6 4TT0 8.04 T(l)12.998(t)-5(a)4.005(g)3.998

**Electrical Characteristics** ( $T_J=25$  unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>Static Parameter</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250$	50			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50V, V_{GS}=0V$			0.5	
Gate-Body Leakage Current	$I_{GSS1}$	$V_{GS}=20V, V_{DS}=0V$			100	nA
	$I_{GSS2}$	$V_{GS}=10V, V_{DS}=0V$			50	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250$	0.8	1.2	1.6	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=300mA$		1.1	2.5	
		$V_{GS}=4.5V, I_D=200mA$		1.2	3.0	
Diode Forward Voltage	$V_{SD}$	$I_S=300mA, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	$I_S$				340	mA
<b>Dynamic Parameters</b>						
Input Capacitance	$C_{iss}$			28.5		pF
Output Capacitance	$C_{oss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		2.7		
Reverse Transfer Capacitance	$C_{rss}$			1.78		
<b>Switching Parameters</b>						
Total Gate Charge	$Q_g$	$V_{GS}=10V, V_{DS}=25V, I_D=0.3A$		1.7		nC
Gate-Source Charge	$Q_{gs}$			0.4		
Gate-Drain Charge	$Q_{gd}$			0.24		
Reverse Recovery Charge	$Q_{rr}$	$I_F=0.3A, di/dt=-100A/us$		2.65		
Reverse Recovery Time	$t_{rr}$			12.2		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=25V, I_D=300mA, R_{GEN}=6$		2.6		ns
Turn-on Rise Time	$t_r$			18.8		
Turn-off Delay Time	$t_{D(off)}$			9.7		
Turn-off fall Time	$t_f$			47		

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

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

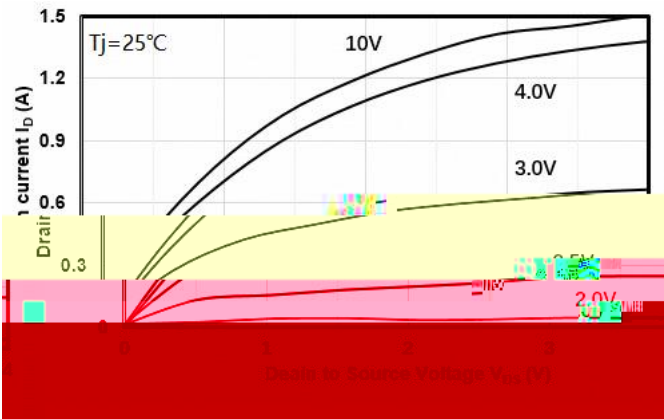


Figure1. Output Characteristics

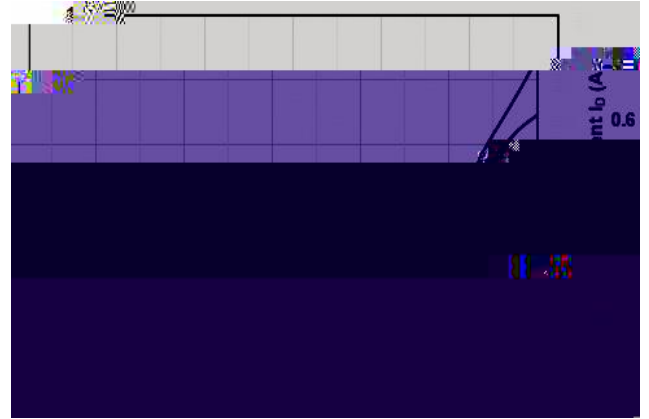


Figure2. Transfer Characteristics

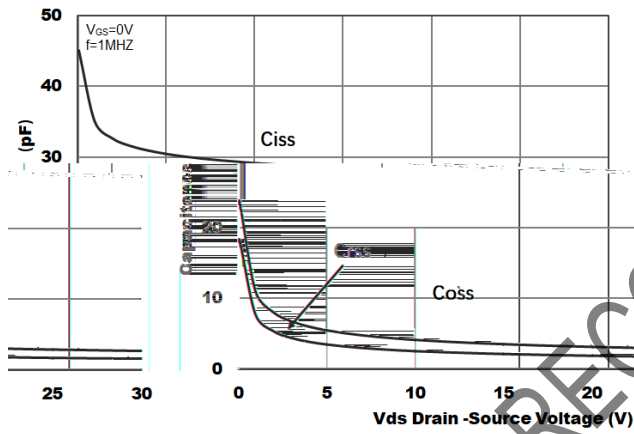


Figure3. Capacitance Characteristics

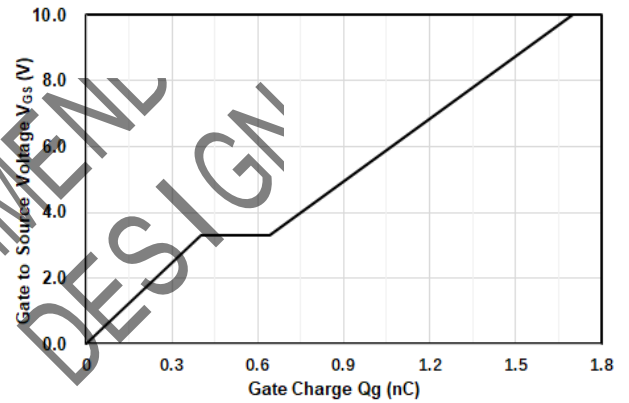


Figure4. Gate Charge

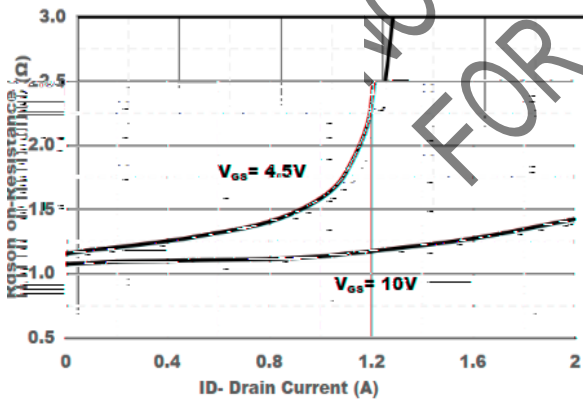


Figure5. Drain-Source on Resistance

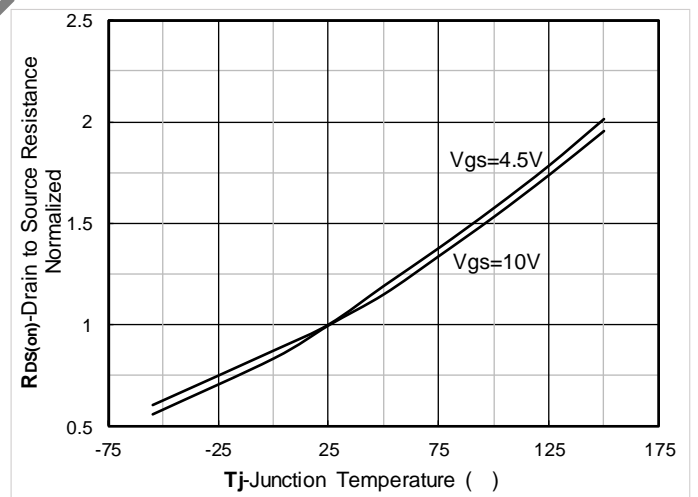


Figure6. Drain-Source on Resistance

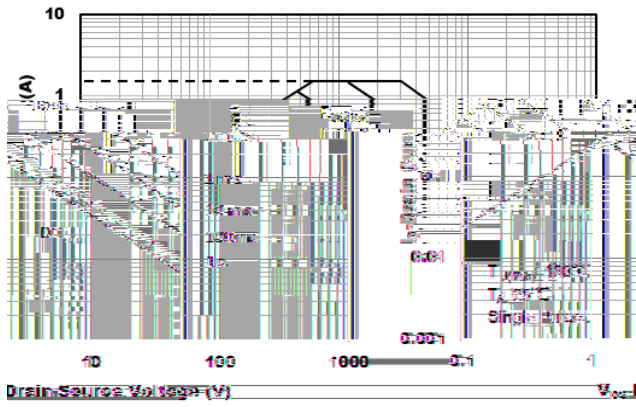


Figure 7. Safe Operation Area

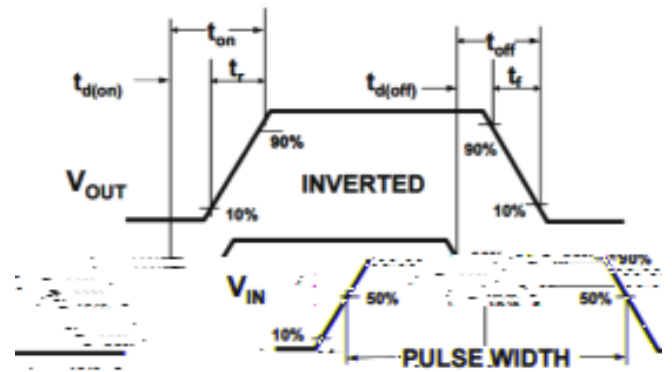


Figure 8. Switching wave

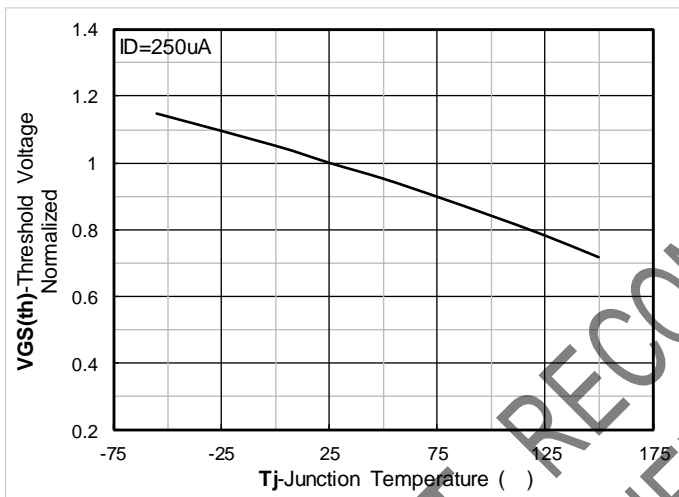


Figure 9. Normalized Threshold voltage

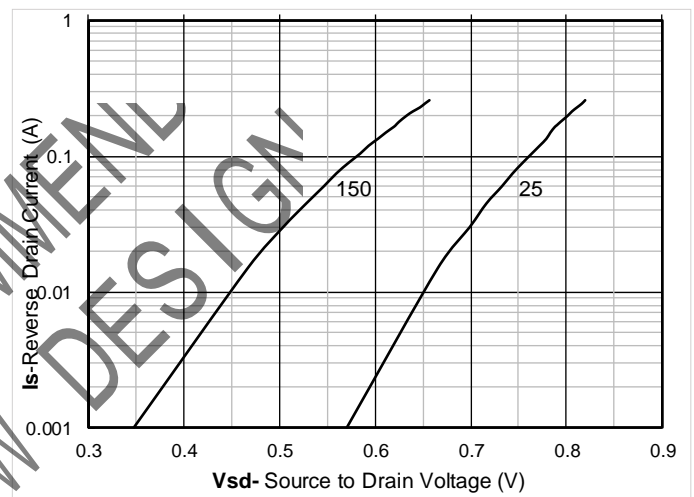


Figure 10. Forward characteristics of reverse diode



SOT-23 Package information



UNIT mm

NOT RECOMMEND  
FOR NEW DESIGN



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