



N-Channel Enhancement Mode Field Effect Transistor

Product Summary

V_{DS}	85V
I_D	118A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	6 mohm
$R_{DS(ON)}$ (at $V_{GS}=6V$)	9 mohm
100% UIS Tested	
100% V_{DS} Tested	

General Description

Split gate trench MOSFET technology
Excellent package for heat dissipation
High density cell design for low $R_{DS(ON)}$

Applications

Battery management
Motor control and drive
UPS (Uninterruptible Power Supplies)

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

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	85	V
Gate-source Voltage		V_{GS}	± 20	V
Drain Current	$T_C=25$	I_D	118	A
	$T_C=100$		74.6	
Pulsed Drain Current ^A		I_{DM}	472	



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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}	$V_{GS}=0V, I_D=250 \mu A$	85	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=85V, V_{GS}=0V$	-	-	1	μA
		$V_{DS}=85V, V_{GS}=0V, T_J=150$	-	-	100	
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250 \mu A$	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=59A$	-	4.5	6	m Ω
		$V_{GS}=10V, I_D=20A$	-	4.5	6	
		$V_{GS}=6V, I_D=20A$	-	7	9	
Diode Forward Voltage	V_{SD}	$I_S=59A, V_{GS}=0V$	-	0.9	1.2	V
Gate resistance	R_G	$f=1MHz, \text{Open drain}$	-	1.8	-	
Maximum Body-Diode Continuous Current	I_S		-	-	118	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	4400	-	μF
Output Capacitance	C_{oss}		-	1650	-	
Reverse Transfer Capacitance	C_{rss}		-	150	-	
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=40V, I_D=59A$	-	63	-	nC
Gate-Source Charge	Q_{gs}		-	20	-	
Gate-Drain Charge	Q_{gd}		-	22	-	
Reverse Recovery Charge	Q_{rr}	$I_F=59A, di/dt=300A/\mu s$	-	85	-	nC
Reverse Recovery Time	t_{rr}		-	33	-	ns
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=40V, I_D=59A$ $R_{GEN}=2.2$	-	20	-	ns
Turn-on Rise Time	t_r		-	100	-	
Turn-off Delay Time	$t_{D(off)}$		-	24	-	
Turn-off fall Time	t_f		-	7	-	

A. Repetitive rating; pulse width limited by max. junction temperature.

B. $T_J=25$, $V_{DD}=50V, V_G=10V, R_G=5\Omega, L_G=0.5mH, I_{AS}=39A$.

C. P_d is based on max. junction temperature, using junction-case thermal resistance.

D. The value of $R_{\theta JE}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25$. The maximum allowed junction temperature of 150. The value in any given application depends on the user's specific board design.



Typical Electrical and Thermal Characteristics Diagrams

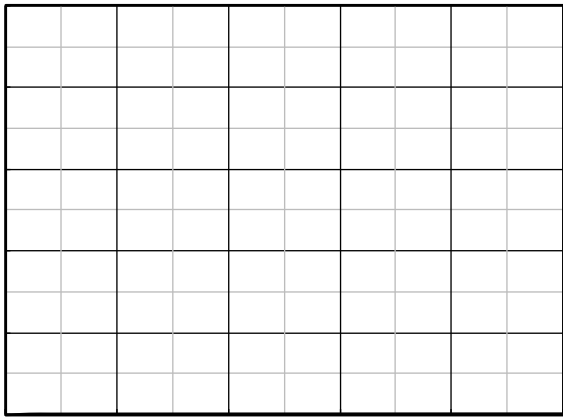


Figure1. Output Characteristics

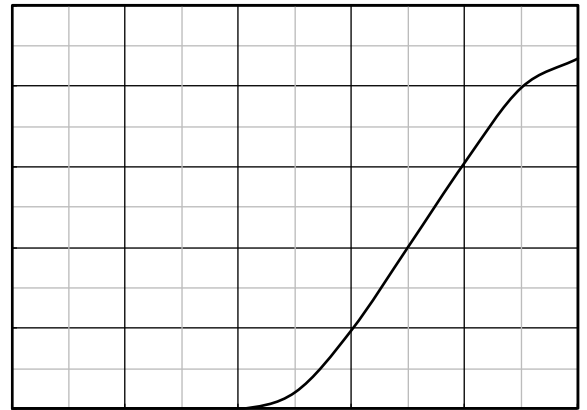


Figure2. Transfer Characteristics

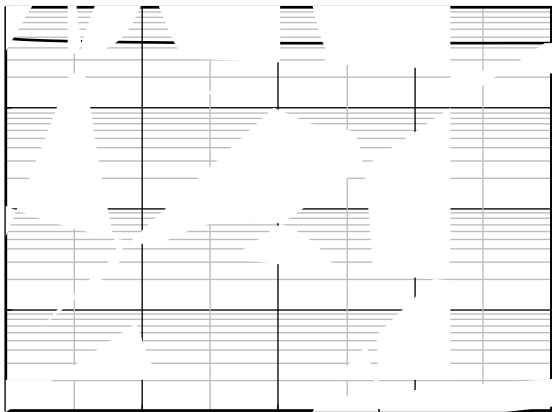


Figure3. Capacitance Characteristics

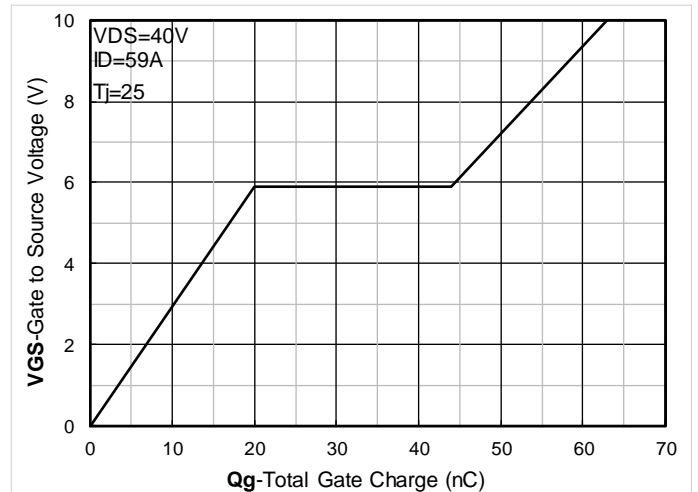


Figure4. Gate Charge

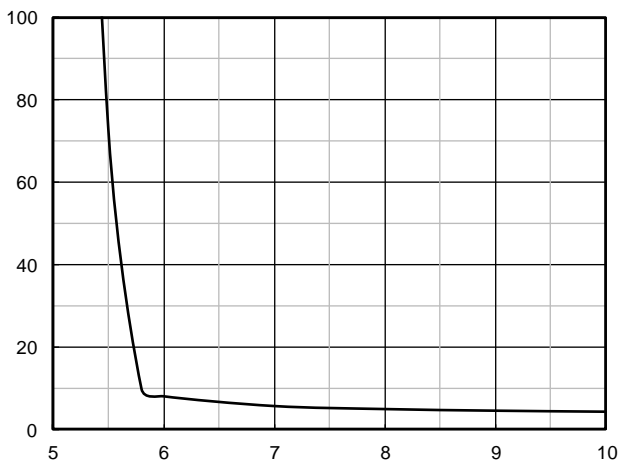


Figure5. On-Resistance vs Gate to Source Voltage

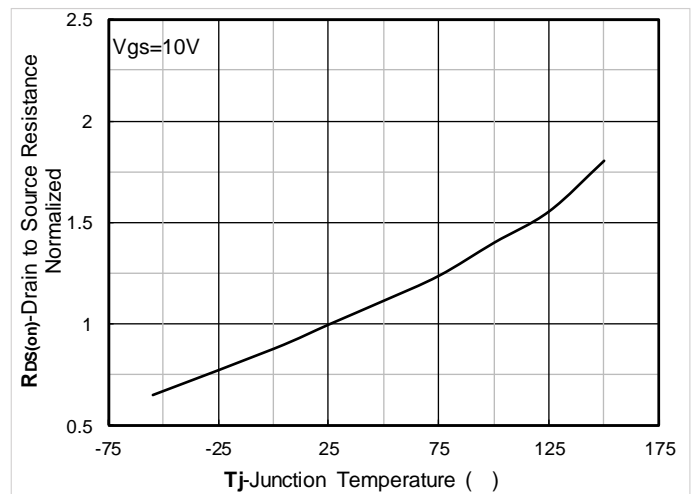


Figure6. Normalized On-Resistance



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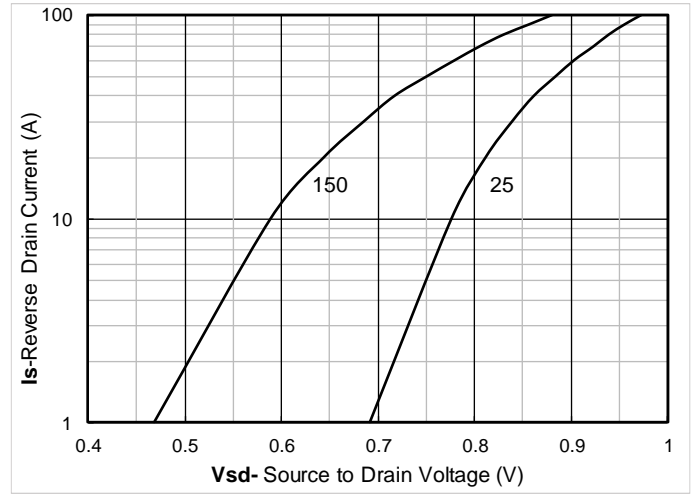
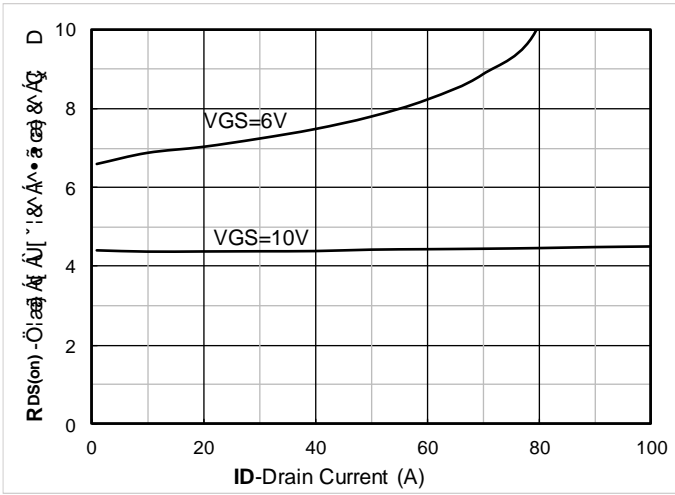


Figure7. $R_{DS(on)}$ vs. I_D .



TO-263-HY Package information

SYM.	MIN.	
A2		
b2		0.050
c		
c2		
D2		
E		
E1		



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