



N-Channel Enhancement Mode MOSFET

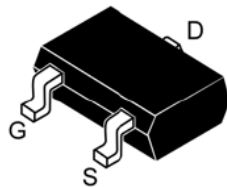
● Features

- 20V/3A ,
- $R_{DS(ON)}=30m\Omega(\text{typ.}) @ V_{GS}=10V$
- $R_{DS(ON)}=35m\Omega(\text{typ.}) @ V_{GS}=4.5V$
- $R_{DS(ON)}=45m\Omega(\text{typ.}) @ V_{GS}=2.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)

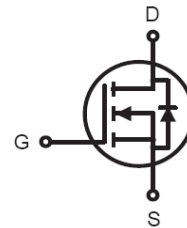
● General Description

Power Management in Notebook Computer ,
Portable Equipment and Battery Powered Systems.

● Pin Configuration



SOT23



● Absolute Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	20	V	
V_{GSS}	Gate-Source Voltage	± 8		
I_D	Continuous Drain Current	3	A	
I_{DM}	300 μs Pulsed Drain Current			20
I_S	Diode Continuous Forward Current	1	A	
T_J	Maximum Junction Temperature	150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 150		
P_D	Maximum Power Dissipation	$T_A=25^\circ\text{C}$	0.83	W
		$T_A=100^\circ\text{C}$	0.3	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	150	$^\circ\text{C/W}$	

Notes:

mounted on a 1in² FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC (<10s) test conditions , for each single die. Pulse Test: Pulse Width < 300 μS , Duty Cycle < 2%.



● Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
B_{VDSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	20			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	25°C		1	μA
			80°C		30	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	0.7	1	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_{DS}=3A$		30		m Ω
		$V_{GS}=4.5V, I_{DS}=3A$		35		
		$V_{GS}=2.5V, I_{DS}=2A$		45		
V_{SD}	Diode Forward Voltage	$I_{SD}=1.25A, V_{GS}=0V$		0.7	1.3	V
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V,$ $I_{DS}=6A$		5	10	nC
Q_{gs}	Gate-Source Charge			1		
Q_{gd}	Gate-Drain Charge			1.1		
Dynamic Characteristics						
R_G	Gate Resistance	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$		6		Ω
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=15V,$ Frequency=1.0MHz		420		pF
C_{oss}	Output Capacitance			100		
C_{riss}	Reverse Transfer Capacitance			60		
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD}=10V, R_L=10\Omega, I_{DS}=1A,$ $V_{GEN}=4.5V, R_G=6\Omega$		8	15	ns
T_r	Turn-on Rise Time			6	12	
$t_{d(OFF)}$	Turn-off Delay Time			19	35	
T_f	Turn-off Fall Time			7	23	

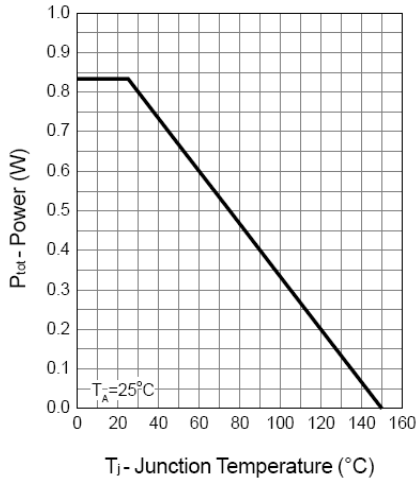
NOTE:

1. mounted on a 1in2 FR-4 board with 2oz. Copper in a still air environment at 25°C, the current rating is based on the DC (<10s) test conditions
2. Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

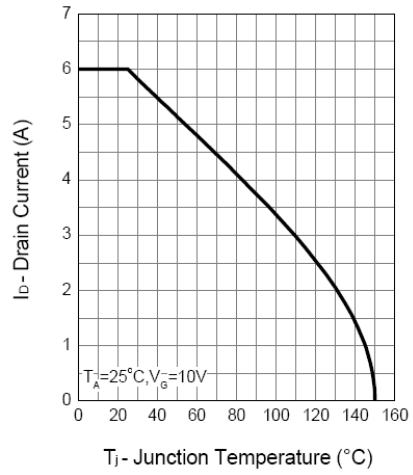


● Typical Performance Characteristics

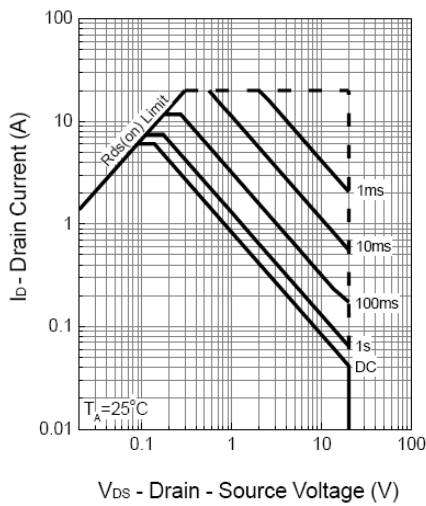
Power Dissipation



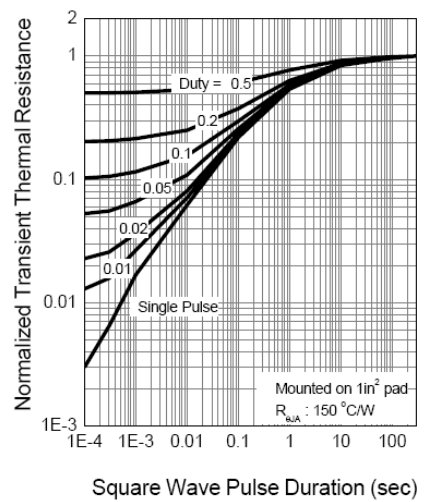
Drain Current



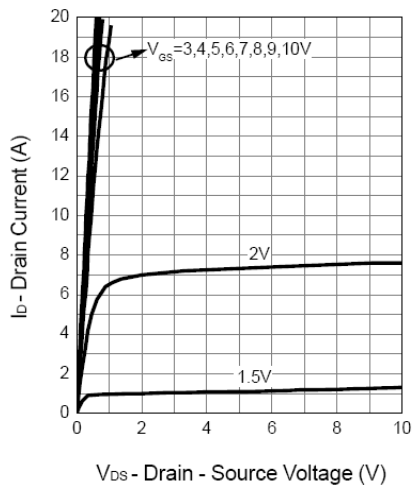
Safe Operation Area



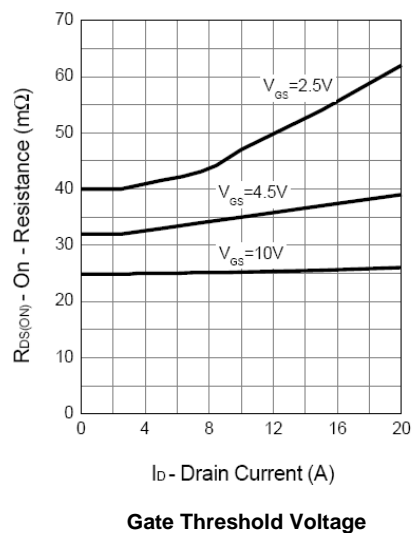
Thermal Transient Impedance



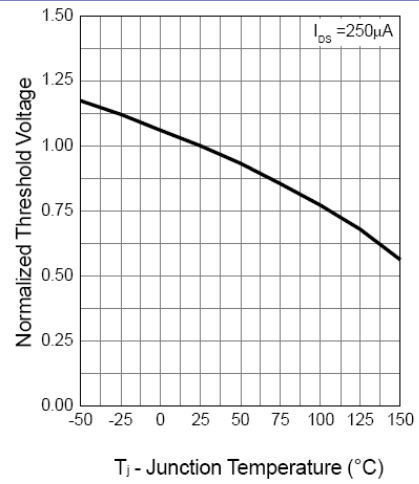
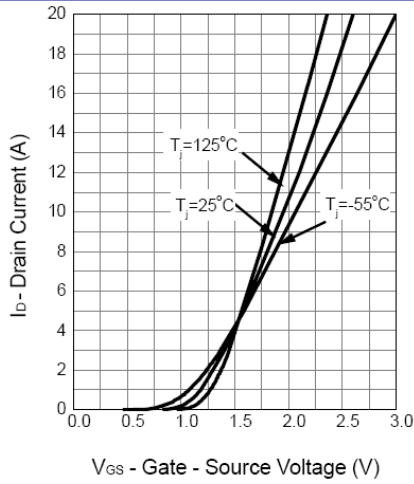
Output Characteristics



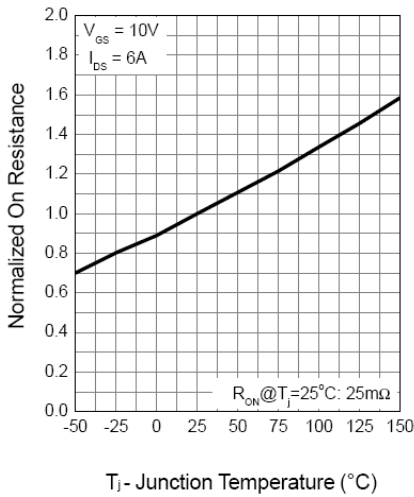
Drain-Source On Resistance



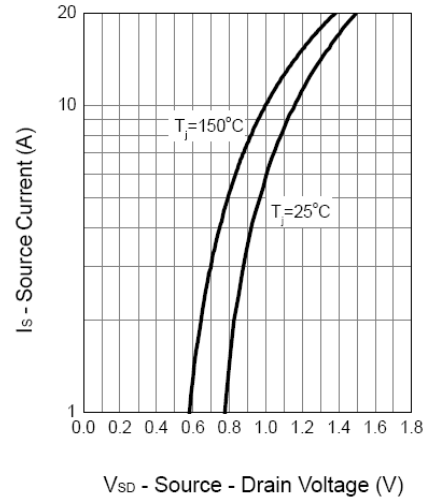
Transfer Characteristics



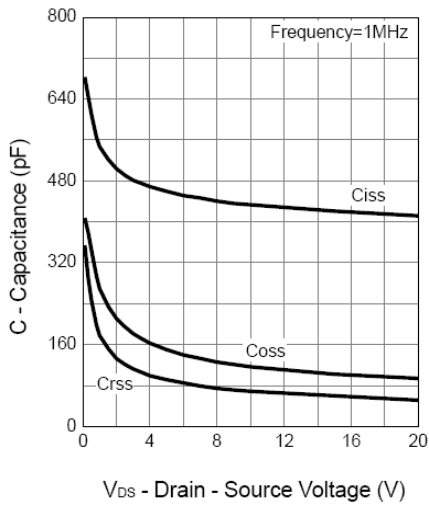
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

