N-Channel Enhancement Mode MOSFET

- **Features**

30V/3.0A ,

$R_{DS(ON}$≤35mΩ @ V_{GS}=10V

$R_{DS(ON)}$ ≤55mΩ @ V_{GS}=4.5V

Super High Dense Cell Design

Reliable and Rugged

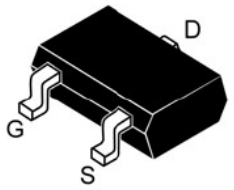
Lead Free Available (RoHS Compliant)

- **General Description**

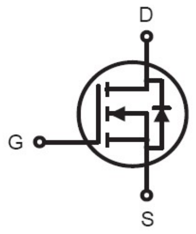
Power Management in Notebook Computer ,

Portable Equipment and Battery Powered Systems.

- **Pin Configuration**



SOT23



- **Absolute Maximum Ratings** @ T_A = 25°C unless otherwise specified

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	
I_D	Continuous Drain Current	V_{GS}=10V	3.0	A
I_{DM}	300µs Pulsed Drain Current		20	
I_S	Diode Continuous Forward Current		1	A
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	
P_D	Maximum Power Dissipation	T_A=25°C	0.83	W
		T_A=100°C	0.3	
$R_{θJA}$	Thermal Resistance-Junction to Ambient		150	°C/W

Notes：

mounted on a 1in^2 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°C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V			1	μA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	1	1.4	3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V			±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=4A		29	35	mΩ
		V_{GS}=4.5V, I_{DS}=3.5A		46	55	
V_{SD}	Diode Forward Voltage	I_{SD}=1.25A, V_{GS}=0V		0.8	1.2	V
Gate Charge Characteristics						
Q_g	Total Gate Charge	V_{DS}=30V, V_{GS}=10V, I_{DS}=4A		7	12	nC
Q_{gs}	Gate-Source Charge			1.8		
Q_{gd}	Gate-Drain Charge			2		
Dynamic Characteristics						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz		6		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=30V, Frequency=1.0MHz		380		pF
C_{oss}	Output Capacitance			100		
C_{rss}	Reverse Transfer Capacitance			60		
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=30V, R_L=10Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω		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	

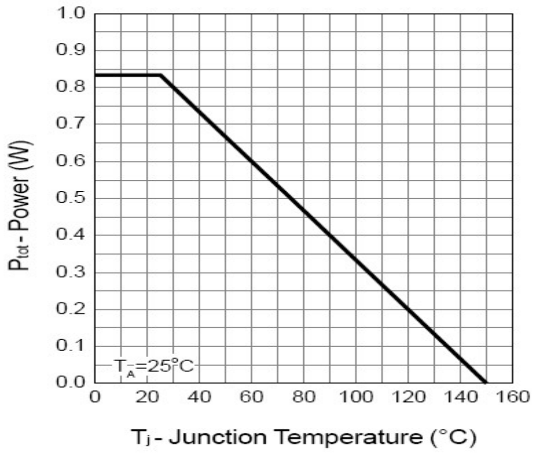
NOTE:

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

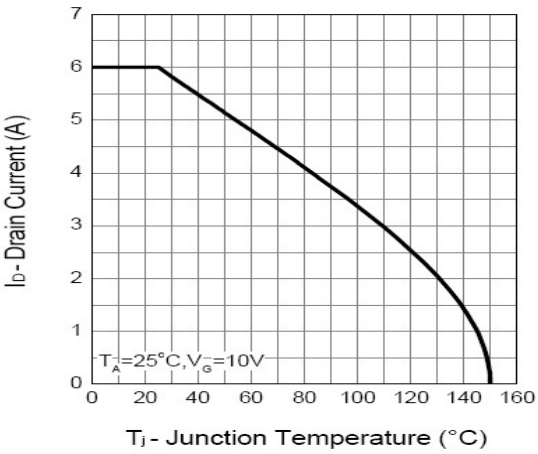
2、Pulse test ; pulse width≤300μs, duty cycle≤2%.

Typical Performance Characteristics

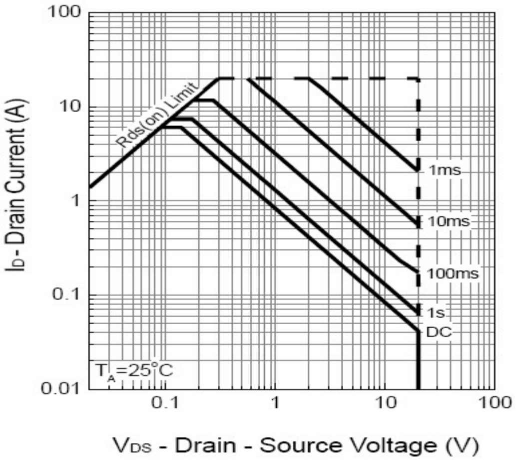
Power Dissipation



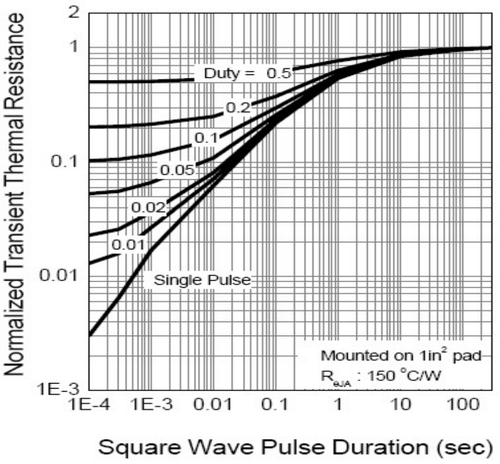
Drain Current



Safe Operation Area



Thermal Transient Impedance

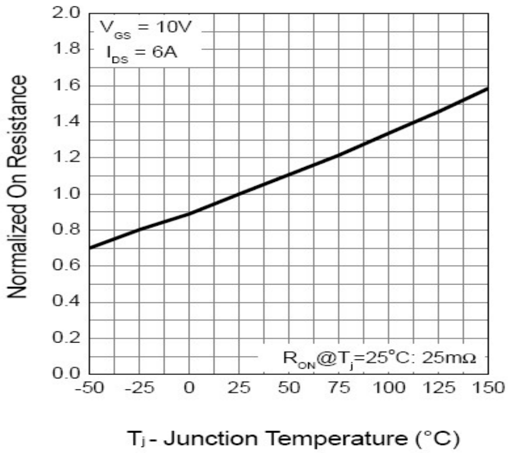


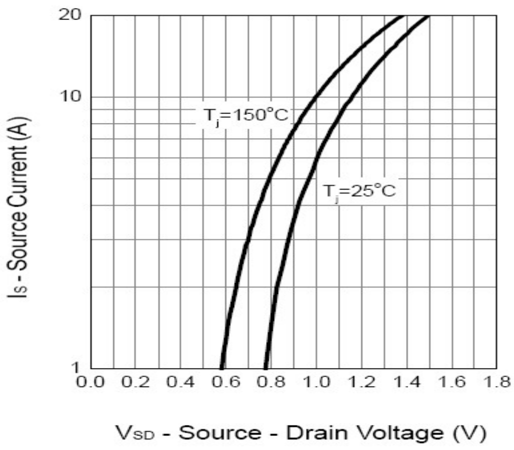
Output Characteristics

Drain-Source On Resistance

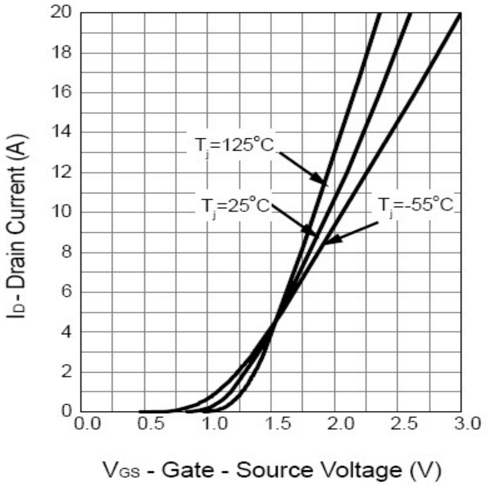
Transfer Characteristics

Gate Threshold Voltage

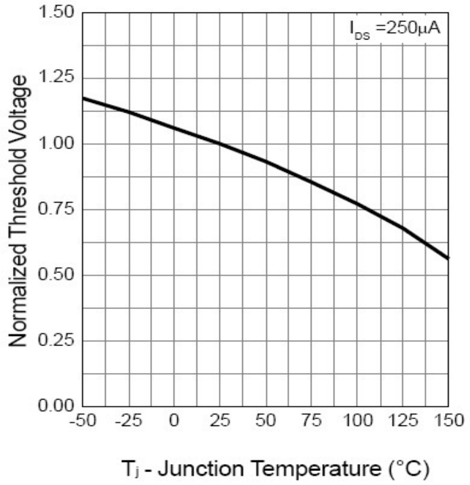




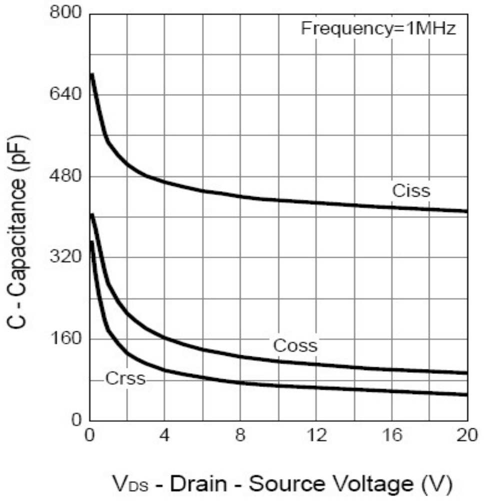
Capacitance



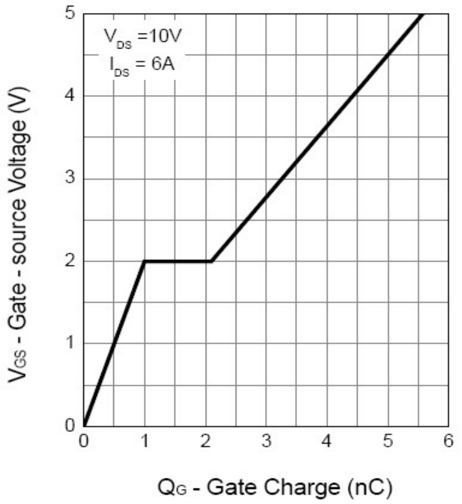
Gate Charge



Drain-Source On Resistance

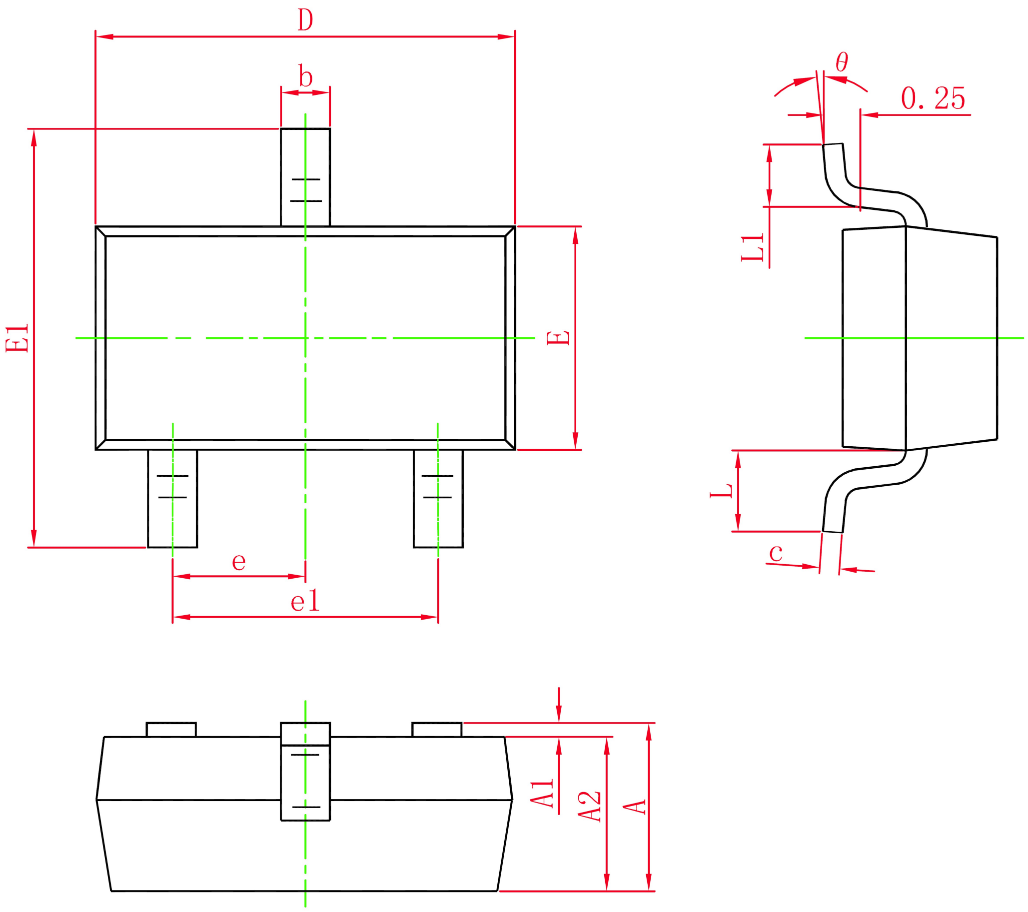


Source-Drain Diode Forward



- **Package Information**

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	**Max.**	**Min.**	**Max.**
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°