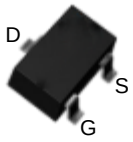
Features

- 100V/0.17A,
  $R_{DS(ON)}$=5Ω(typ.) @ V_{GS}=10V
  $R_{DS(ON)}$=8Ω(typ.) @ V_{GS}=4.5V
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

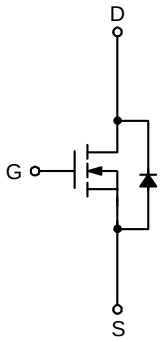
Applications

- Power Magangement in Notebook Computer, Portable Equipment and Battery Powered Systems.
- Load Switch

Pin Description



Top View of SOT-23



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		±20	
I_D	Continuous Drain Current	T_A=25°C	0.17	A
		T_A=70°C	0.128	
I_{DM}	Pulsed Drain Current	V_{GS}=10V	0.51	
I_S	Diode Continuous Forward Current		0.17	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	1.05	W
		T_A=70°C	0.67	
$R_{\theta JA}$ *	Thermal Resistance-Junction to Ambient	t ≤ 10sec	65	°C/W
		Steady state *	120	
I_{AS}	Avalanche Current, Single pulse	L=0.1mH	12	A
E_{AS}	Avalanche Energy, Single pulse	L=0.1mH	7.2	mJ

Note * : Surface Mounted on 1in^2 pad area, steady state = 999sec.

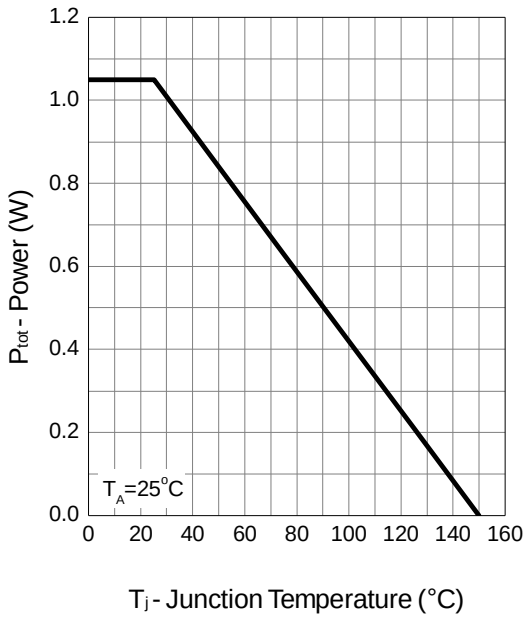
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	100	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=80V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	1.0	1.8	2.8	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [a]	Drain-Source On-State Resistance	V_{GS}=10V, I_{DS}=0.17A	-	5	6	Ω
		V_{GS}=4.5V, I_{DS}=0.17A	-	8	10	
Diode Characteristics						
V_{SD} [a]	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V	-	0.75	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=8A, dI_{SD}/dt=100A/μs	-	12.8	-	ns
Q_{rr}	Reverse Recovery Charge		-	3.8	-	nC
Dynamic Characteristics [b]						
R_g	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	1.5	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, Frequency=1.0MHz	-	30	-	pF
C_{oss}	Output Capacitance		-	10	-	
C_{rss}	Reverse Transfer Capacitance		-	2	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=15Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	6	10	ns
T_r	Turn-on Rise Time		-	9	13	
$t_{d(OFF)}$	Turn-off Delay Time		-	14	20	
T_f	Turn-off Fall Time		-	3.2	5	
Gate Charge Characteristics [b]						
Q_g	Total Gate Charge	V_{DS}=30V, I_{DS}=8A, V_{GS}=4.5V,	-	4	-	nC
		V_{GS}=10V	-	8	-	
Q_{gs}	Gate-Source Charge	V_{DS}=30V, V_{GS}=10V, I_{DS}=8A	-	1.5	-	
Q_{gd}	Gate-Drain Charge		-	1.5	-	
Q_{gth}	Threshold Gate Charge		-	0.75	-	

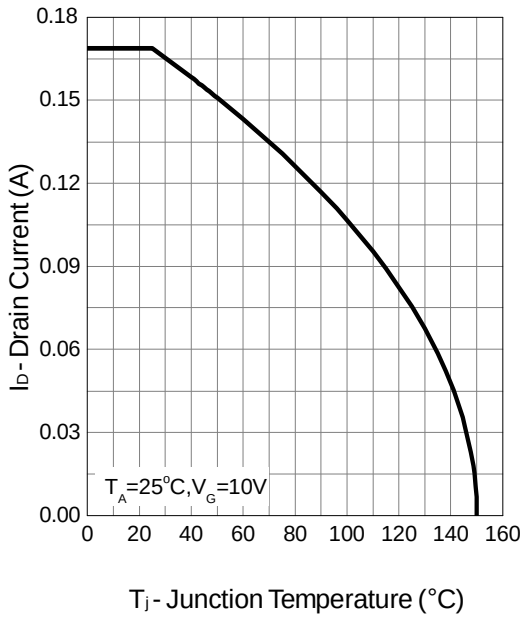
Note a：Pulse test; pulse width≤300μs, duty cycle≤2%.
Note b：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

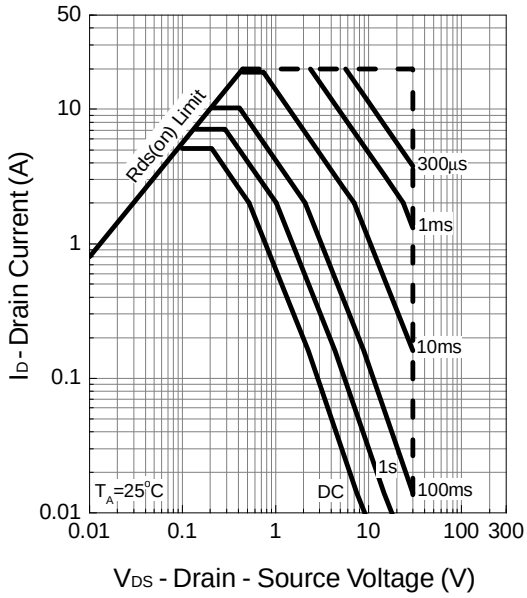
Power Dissipation



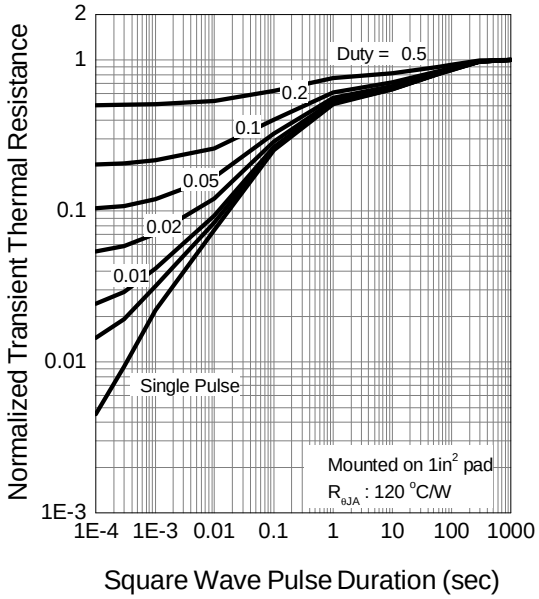
Drain Current



Safe Operation Area

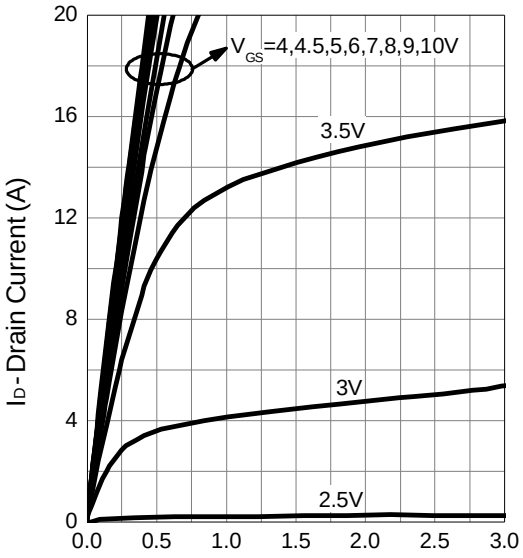


Thermal Transient Impedance

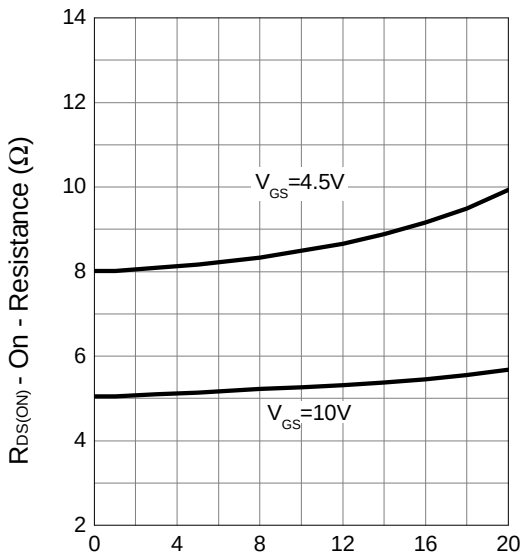


Typical Operating Characteristics (Cont.)

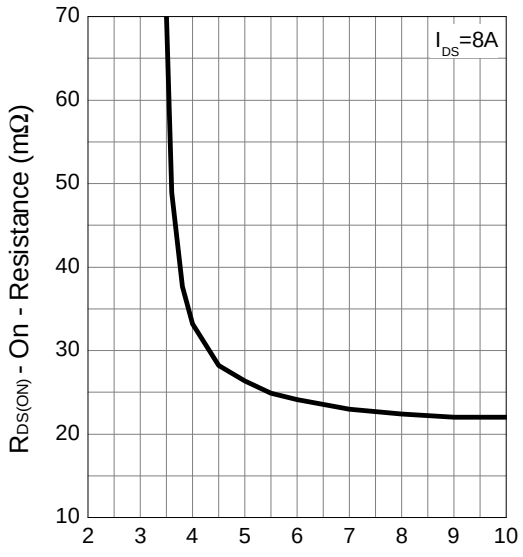
Output Characteristics



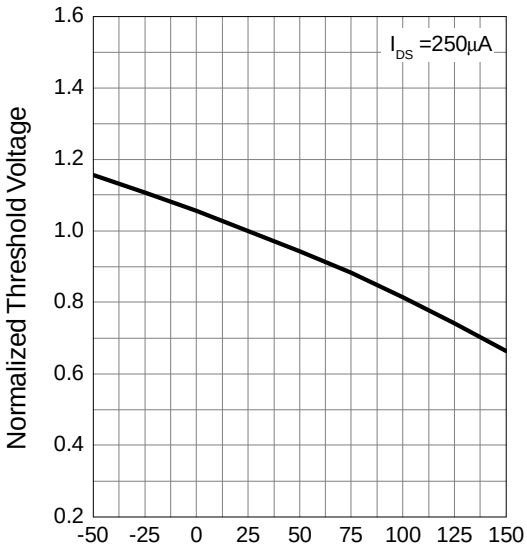
Drain-Source On Resistance



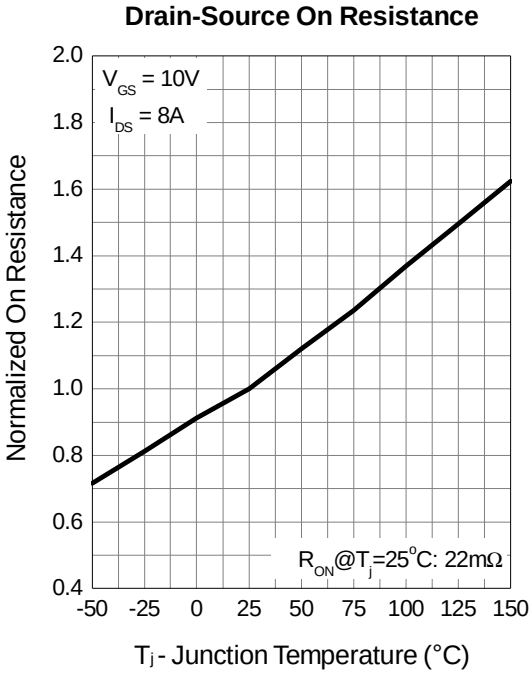
Gate-Source On Resistance

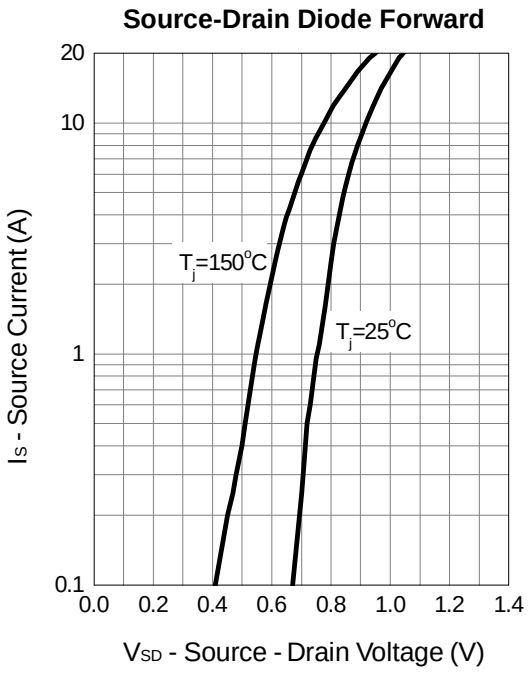


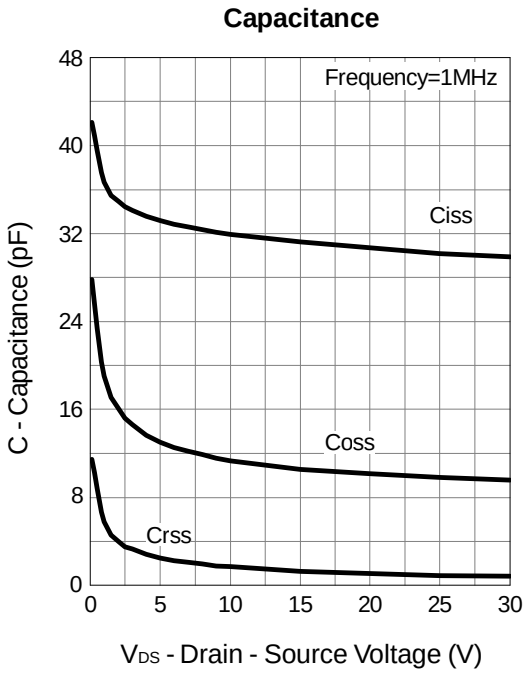
Gate Threshold Voltage

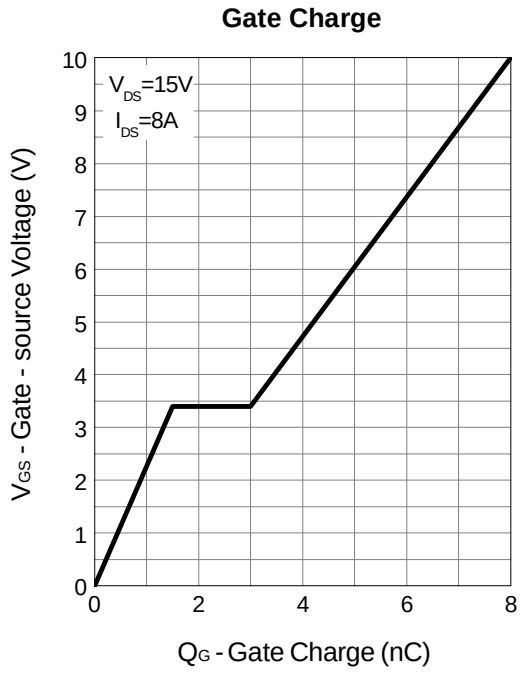


Typical Operating Characteristics (Cont.)

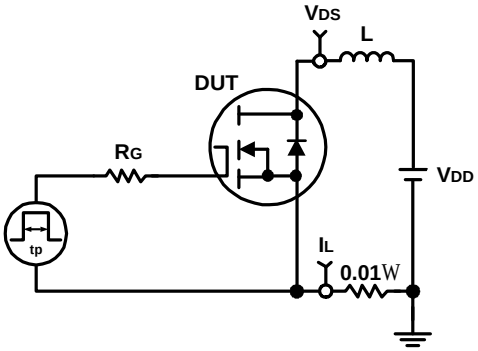


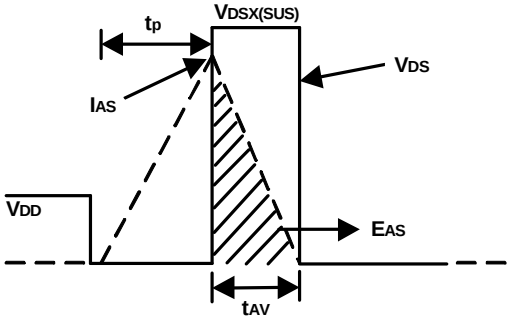




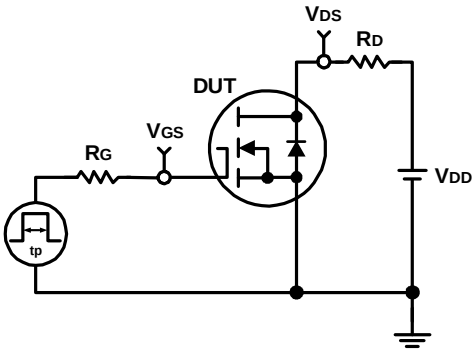


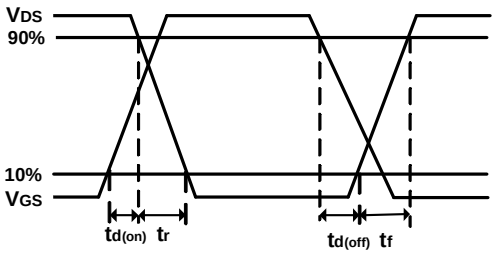
Avalanche Test Circuit and Waveforms



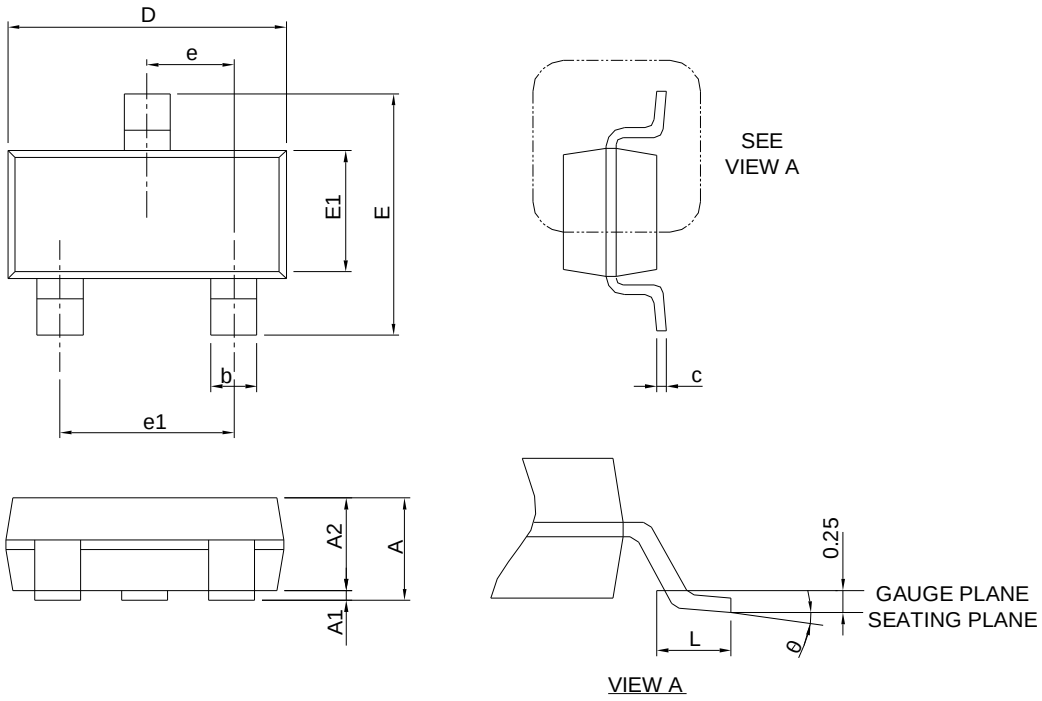


Switching Time Test Circuit and Waveforms





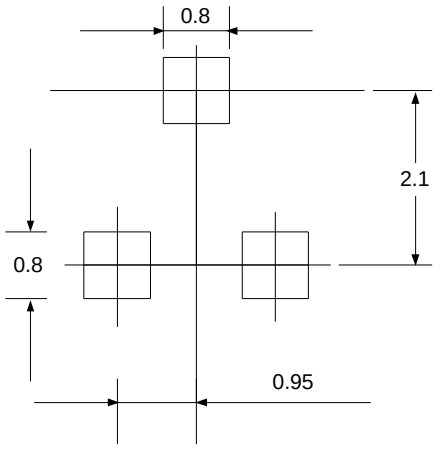
Package Information



SYMBOL	SOT-23			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.20	-	0.047
A1	0.00	0.10	0.000	0.004
A2	0.90	1.10	0.035	0.043
b	0.30	0.50	0.012	0.020
c	0.08	0.22	0.003	0.009
D	2.70	3.10	0.106	0.122
E	2.20	2.60	0.086	0.102
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0 °	8 °	0 °	8 °

Note : Dimension D and E1 do not include mold flash, protrusions or gate burrs. Mold flash, protrusion or gate burrs shall not exceed 10 mil per side.

RECOMMENDED LAND PATTERN



UNIT: mm