

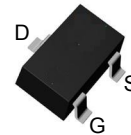
Features

- 60V/0.5A ,
 $R_{DS(ON)} = 1.2\Omega(\text{typ.}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 1.3\Omega(\text{typ.}) @ V_{GS} = 4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- ESD Protection : HBM=(+/-)1600V
MM=(+/-)100V

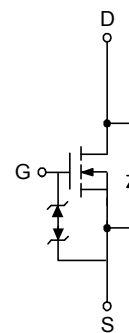
Applications

- High Speed Switching.
- Analog Switching Application.

Pin Description



Top View of SOT-23



N-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		60	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _A =25°C	0.5	A
I _D	Continuous Drain Current	T _A =25°C	0.5	A
		T _A =70°C	0.375	
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	1.5	A
P _D	Maximum Power Dissipation	T _A =25°C	0.83	W
		T _A =70°C	0.53	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	Steady State	150	°C/W

Note a : Pulse width limited by max. junction temperature.

Note b : Surface Mounted on 1in^2 pad area.

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

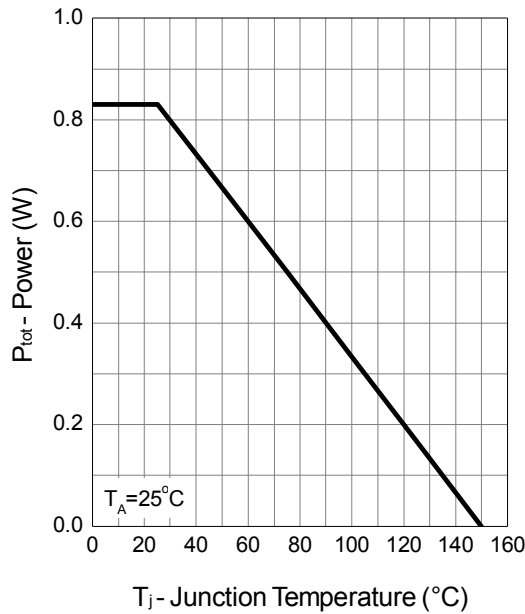
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =48V, V _{GS} =0V T _J =85°C	-	-	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.8	1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±10	μA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =100mA V _{GS} =4.5V, I _{DS} =50mA	- -	1.2 1.3	1.5 1.7	Ω Ω
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =100mA, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =1A, dI _{SD} /dt=100A/μs	-	13	-	ns
Q _{rr}	Reverse Recovery Charge		-	8	-	nC
Dynamic Characteristics ^c						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Frequency=1.0MHz	-	34	52	pF
C _{oss}	Output Capacitance		-	11	-	
C _{rss}	Reverse Transfer Capacitance		-	6.5	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =300Ω, I _{DS} =0.1A, V _{GEN} =10V, R _G =6Ω	-	3	6	ns
t _r	Turn-on Rise Time		-	7	13	
t _{d(OFF)}	Turn-off Delay Time		-	10	18	
t _f	Turn-off Fall Time		-	12	22	
Gate Charge Characteristics ^d						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _{DS} =1A	-	1.6	2.3	nC
Q _{gs}	Gate-Source Charge		-	0.6	-	
Q _{gd}	Gate-Drain Charge		-	0.1	-	

Note c : Pulse test ; pulse width≤300μs, duty cycle≤2%.

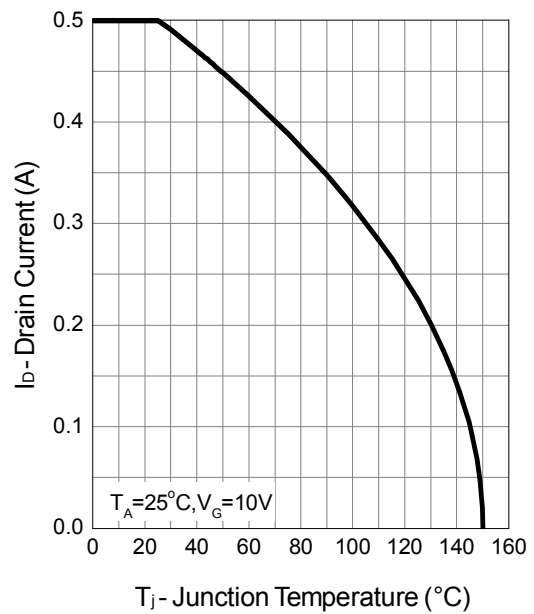
Note d : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

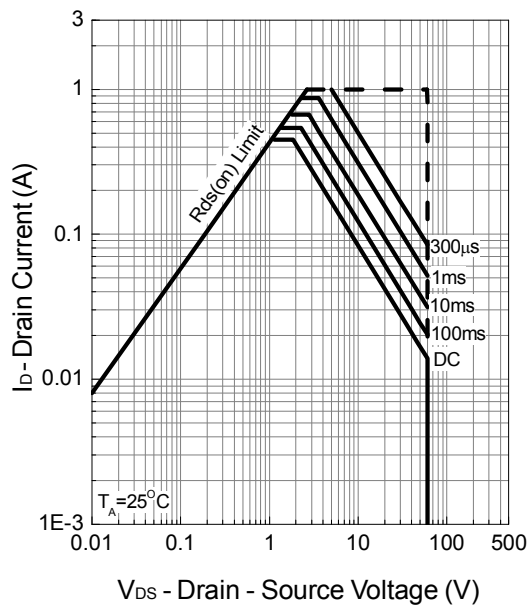
Power Dissipation



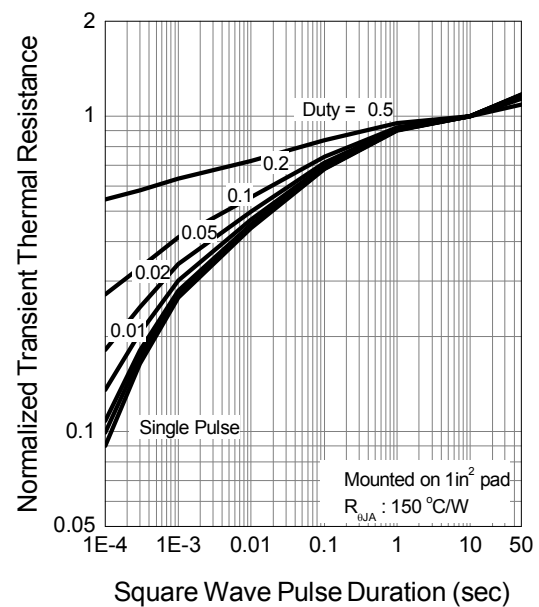
Drain Current



Safe Operation Area

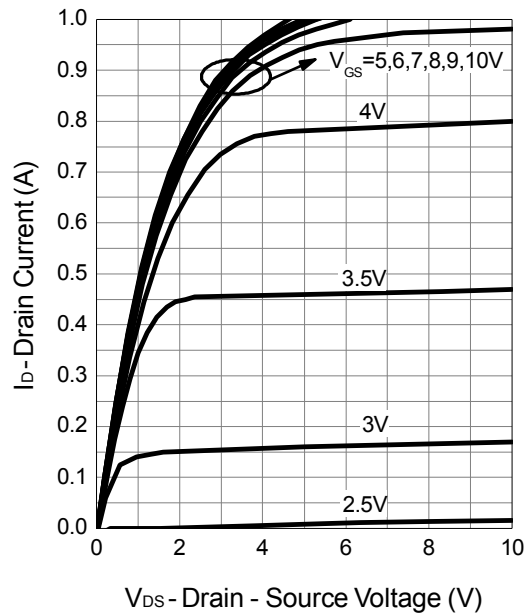


Thermal Transient Impedance

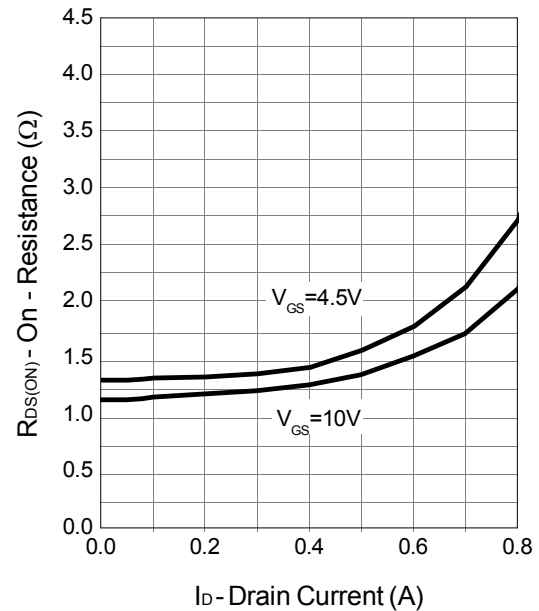


Typical Operating Characteristics (Cont.)

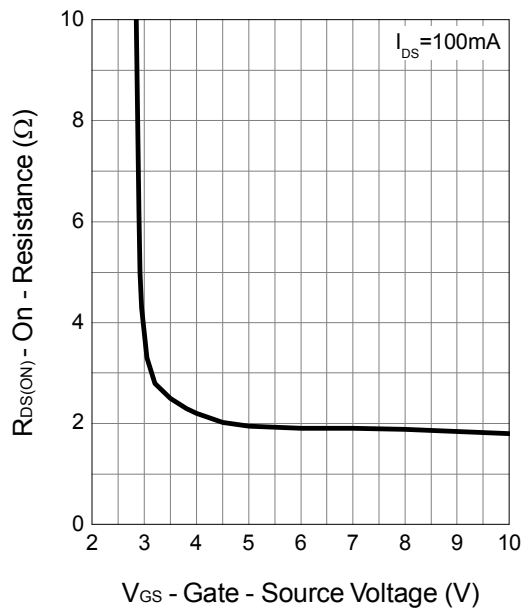
Output Characteristics



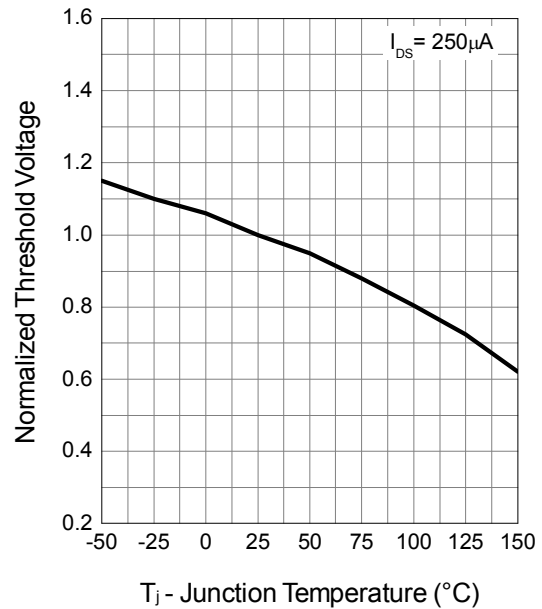
Drain-Source On Resistance



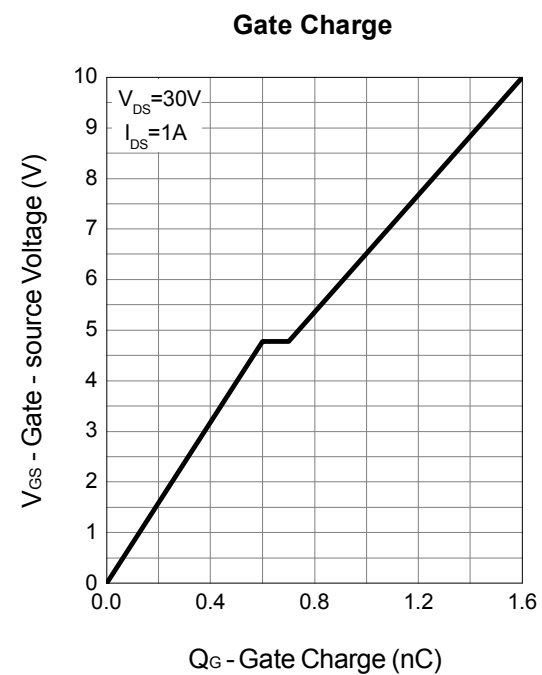
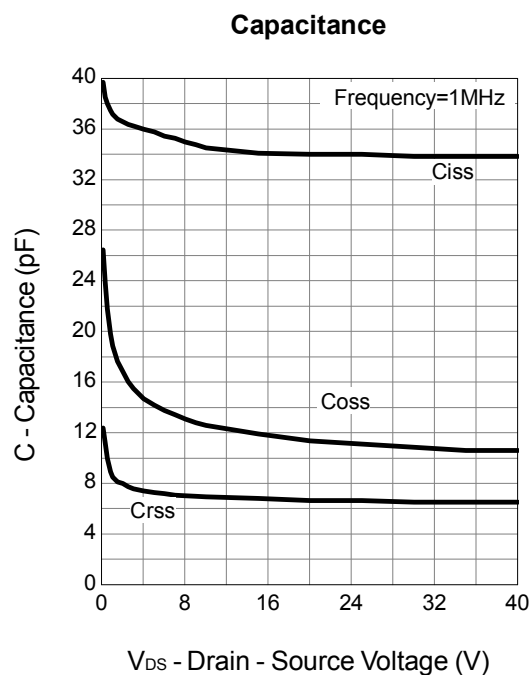
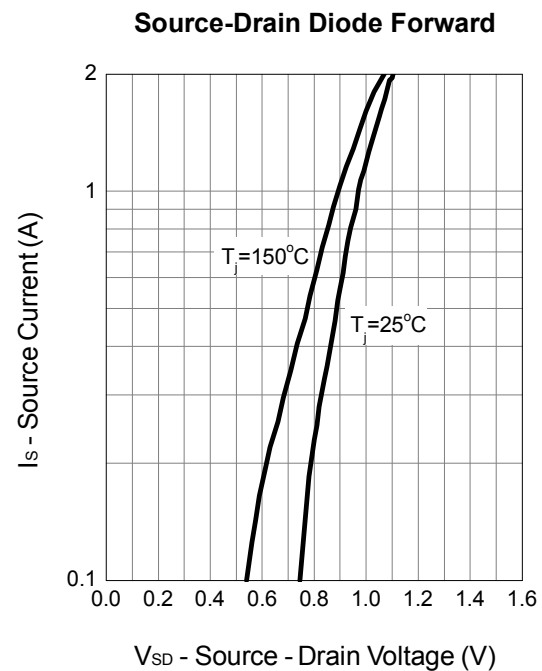
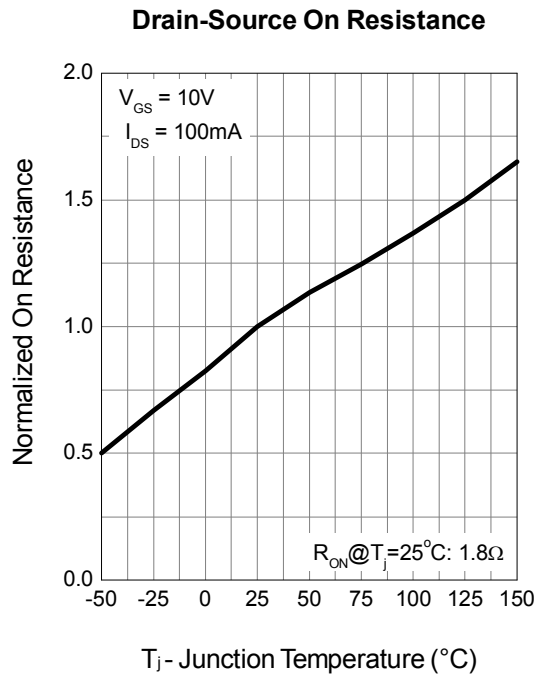
Gate-Source On Resistance



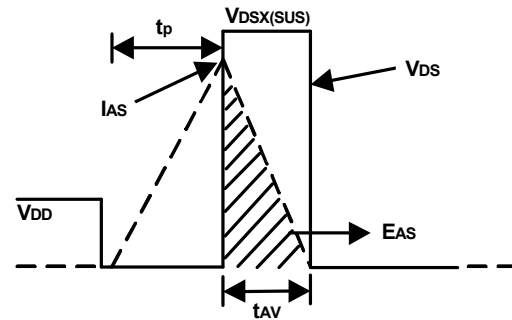
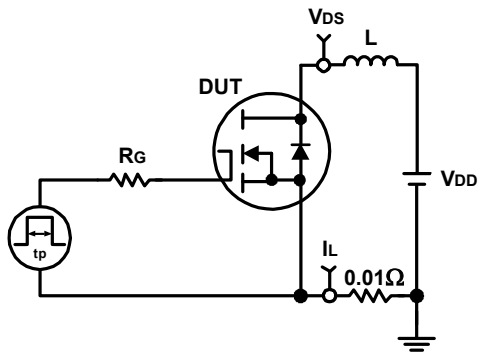
Gate Threshold Voltage



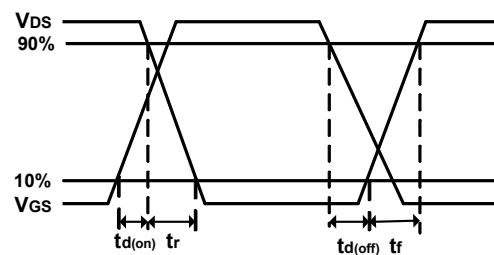
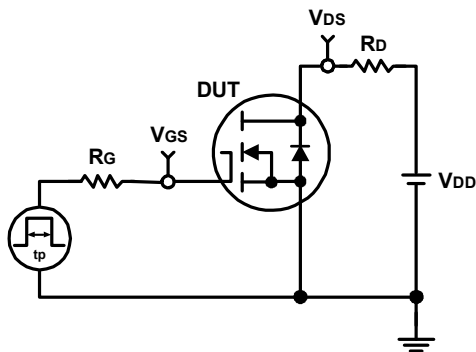
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

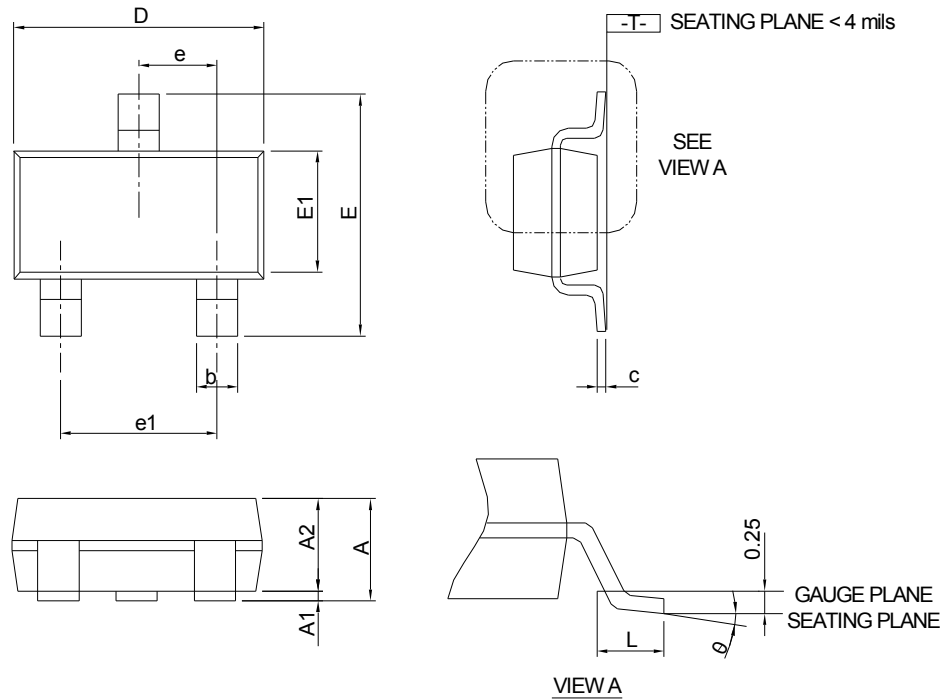


Switching Time Test Circuit and Waveforms



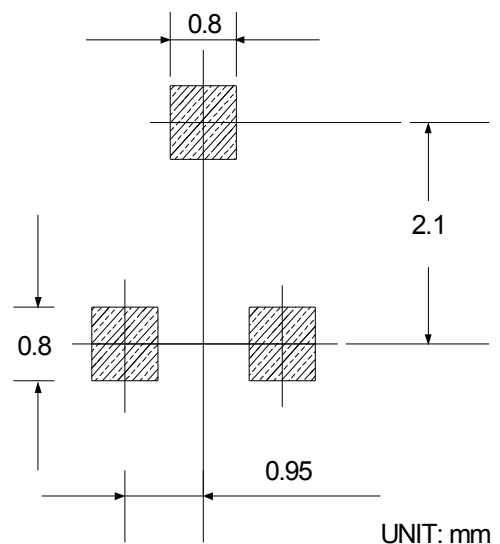
Package Information

SOT-23



SYMBOL	SOT-23			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.20	-	0.047
A1	0.00	0.08	0.000	0.003
A2	0.90	1.12	0.035	0.044
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	2.25	2.55	0.102	0.118
E1	1.20	1.40	0.055	0.071
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°

RECOMMENDED LAND PATTERN



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.