

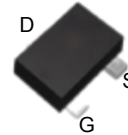
Features

- 20V/0.75A ,
 $R_{DS(ON)} = 270m\Omega(\text{typ.}) @ V_{GS}=4.5V$
 $R_{DS(ON)} = 320m\Omega(\text{typ.}) @ V_{GS}=2.5V$
 $R_{DS(ON)} = 390m\Omega(\text{typ.}) @ V_{GS}=1.8V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- ESD Protection

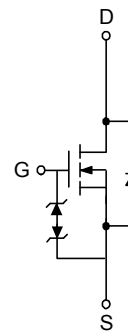
Applications

- High Speed Switching.
- Analog Switch.

Pin Description



Top View of SOT-723



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		20	V
V _{GSS}	Gate-Source Voltage		±12	
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	0.75	A
I _D	Continuous Drain Current	T _A =25°C	0.75	A
		T _A =70°C	0.563	
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	2.25	A
P _D	Maximum Power Dissipation	T _A =25°C	150	mW
		T _A =70°C	96	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	Steady State	833	°C/W

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

Note b : Surface Mounted on min. pad area.

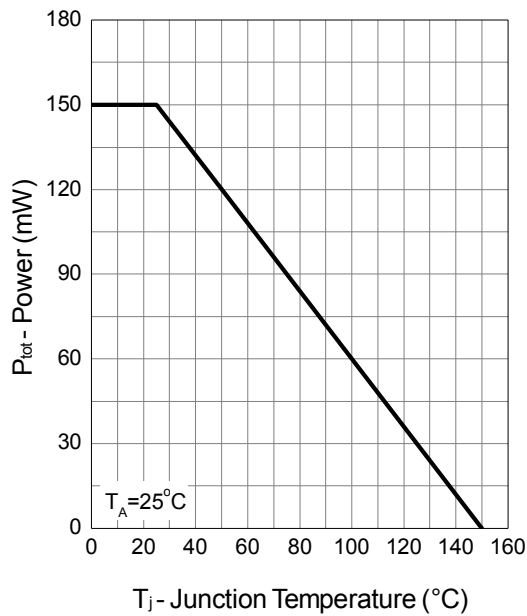
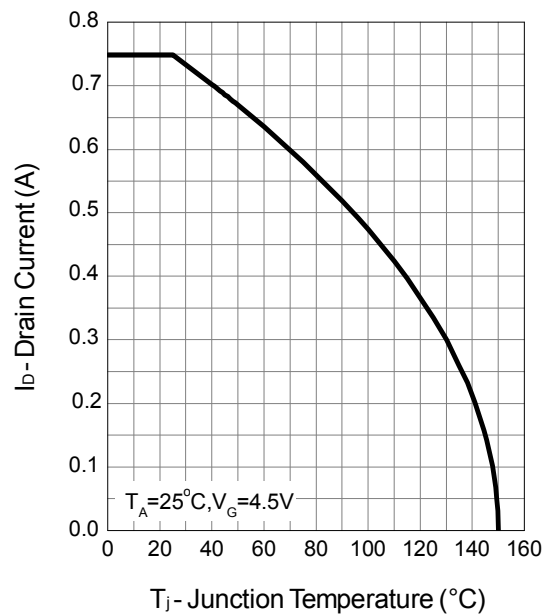
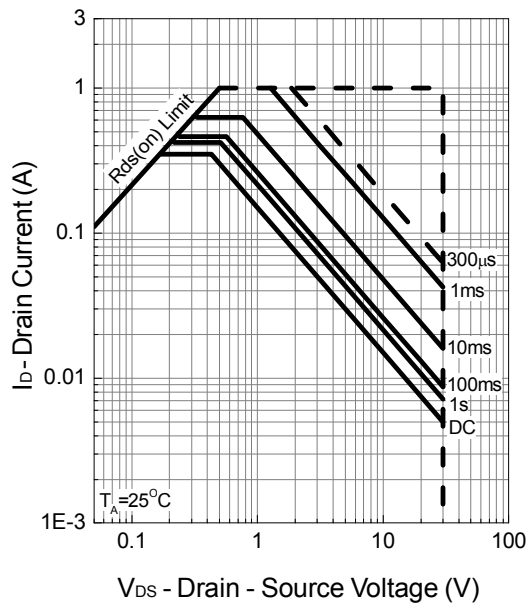
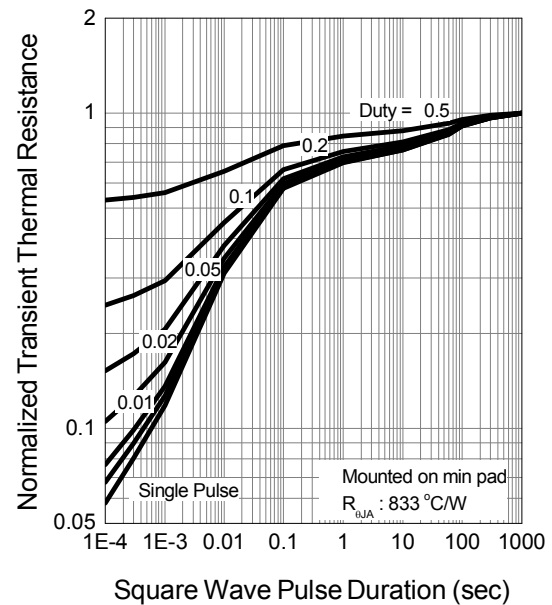
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =16V, V _{GS} =0V T _J =85°C	- -	- -	1 30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.3	0.55	1.1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	μA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =100mA	-	270	380	mΩ
		V _{GS} =2.5V, I _{DS} =50mA	-	320	440	
		V _{GS} =1.8V, I _{DS} =20mA	-	390	520	
		V _{GS} =1.5V, I _{DS} =10mA	-	500	630	
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =250mA, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =1A, dI _{SD} /dt=100A/μs	-	8.2	-	ns
Q _{rr}	Reverse Recovery Charge		-	2.5	-	nC
Dynamic Characteristics ^c						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	80	97	pF
C _{oss}	Output Capacitance		-	14	-	
C _{rss}	Reverse Transfer Capacitance		-	10	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _L =30Ω, I _{DS} =0.33A, V _{GEN} =10V, R _G =6Ω	-	1.4	2.6	ns
t _r	Turn-on Rise Time		-	9.9	17.9	
t _{d(OFF)}	Turn-off Delay Time		-	10.6	19.2	
t _f	Turn-off Fall Time		-	2.3	4.2	
Gate Charge Characteristics ^d						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =1A	-	0.74	1.04	nC
Q _{gs}	Gate-Source Charge		-	0.44	-	
Q _{gd}	Gate-Drain Charge		-	0.1	-	

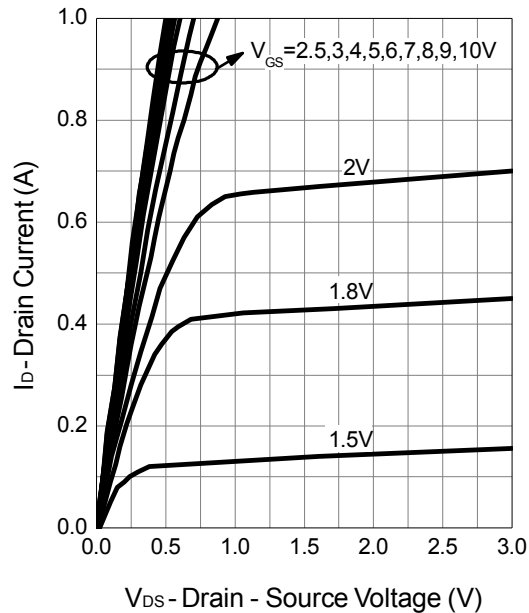
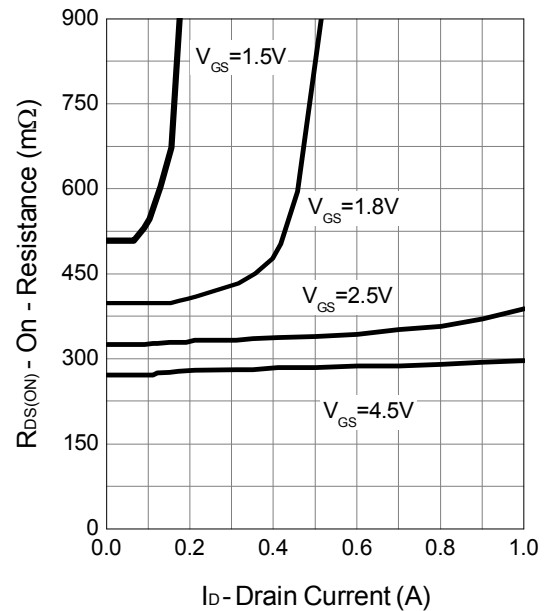
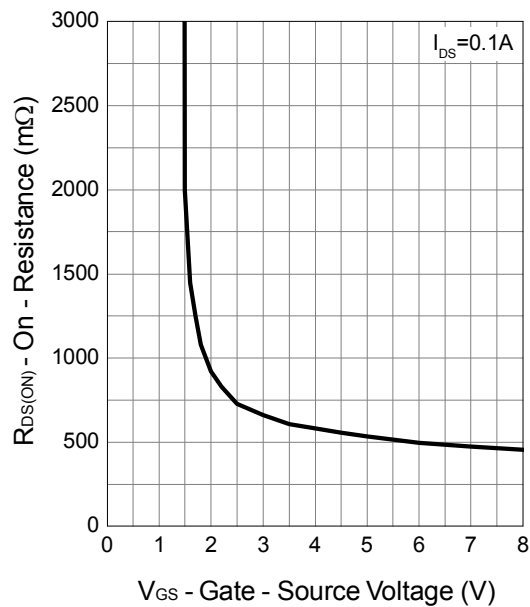
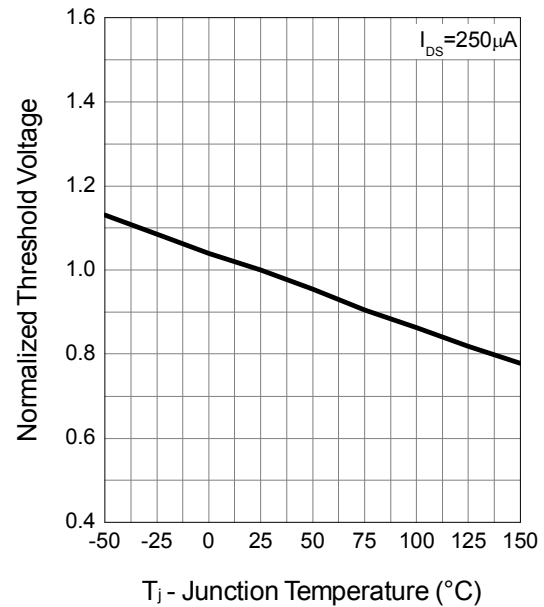
Note c : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

Typical Operating Characteristics

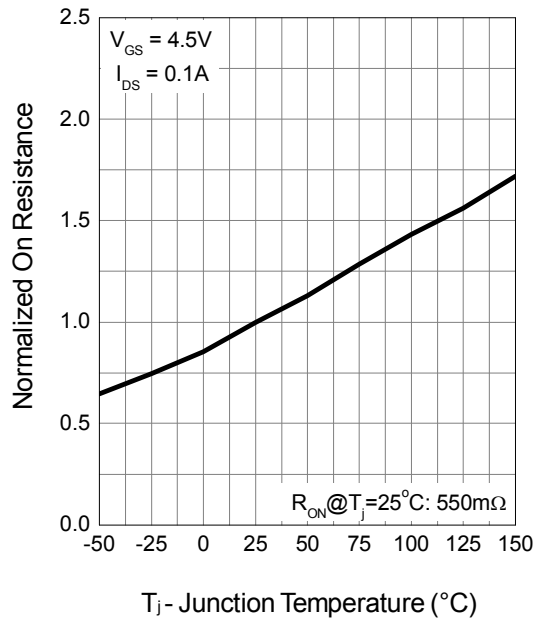
Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


Typical Operating Characteristics (Cont.)

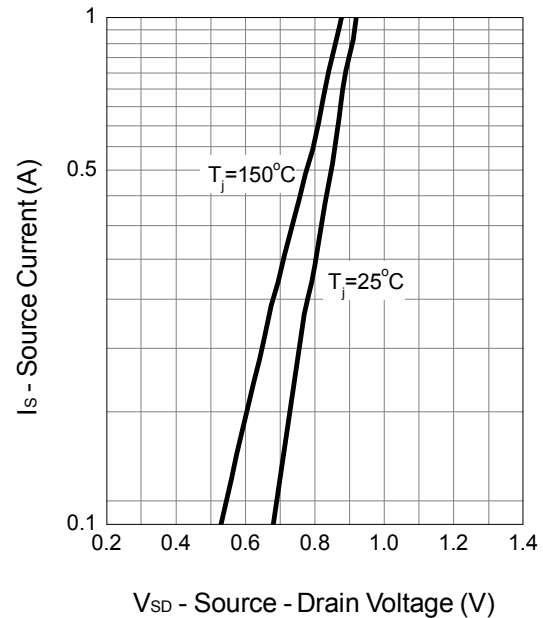
Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


Typical Operating Characteristics (Cont.)

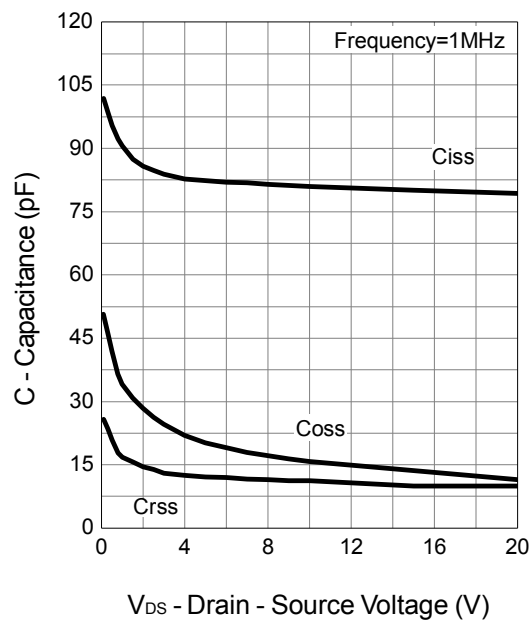
Drain-Source On Resistance



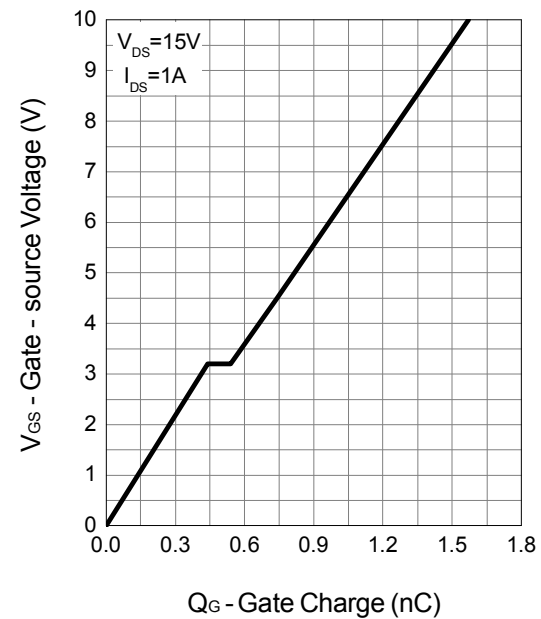
Source-Drain Diode Forward



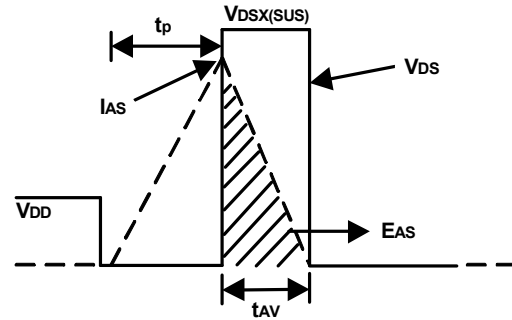
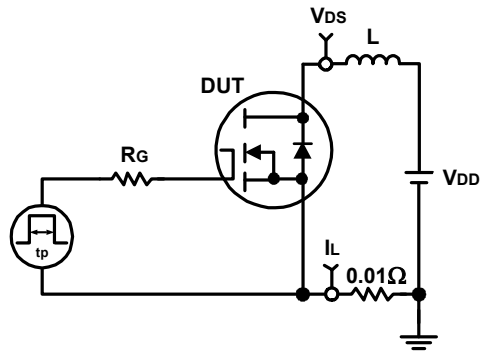
Capacitance



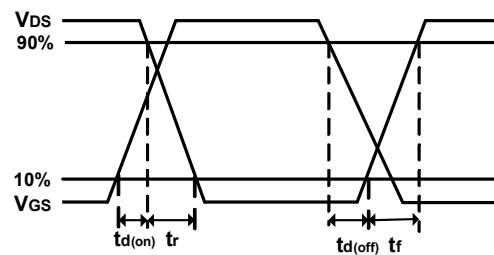
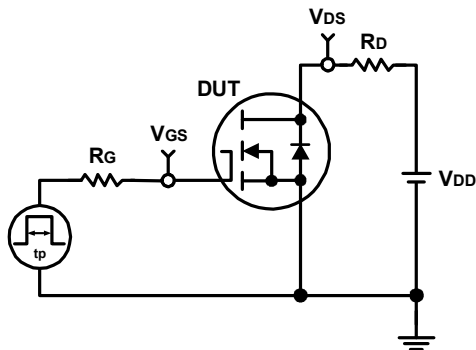
Gate Charge

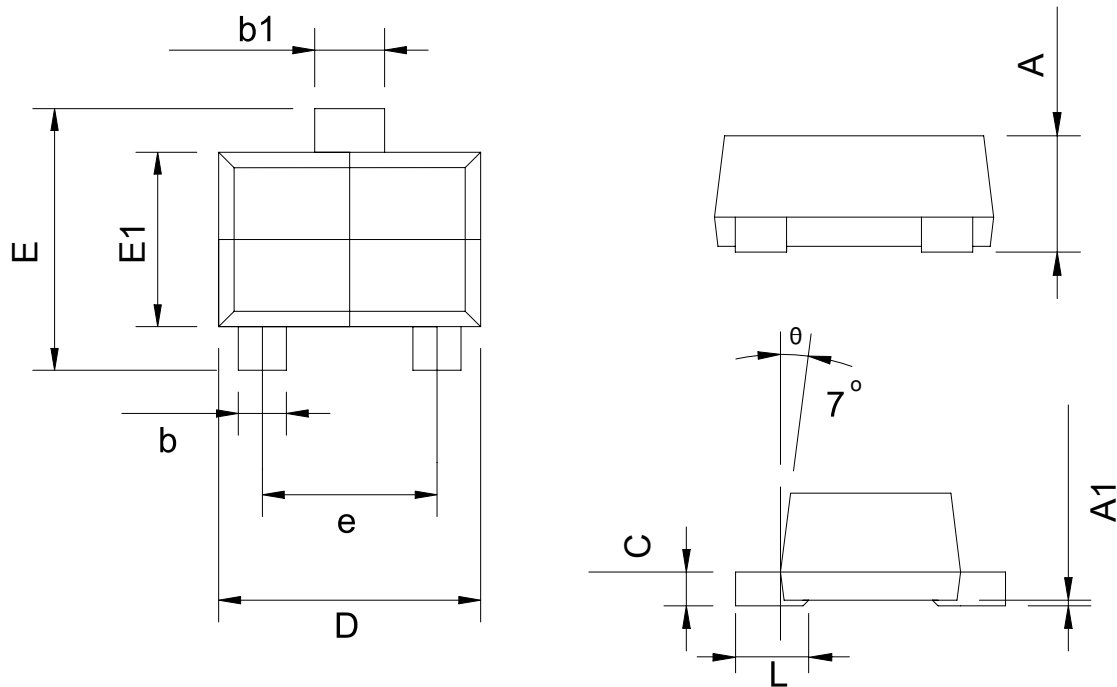


Avalanche Test Circuit and Waveforms

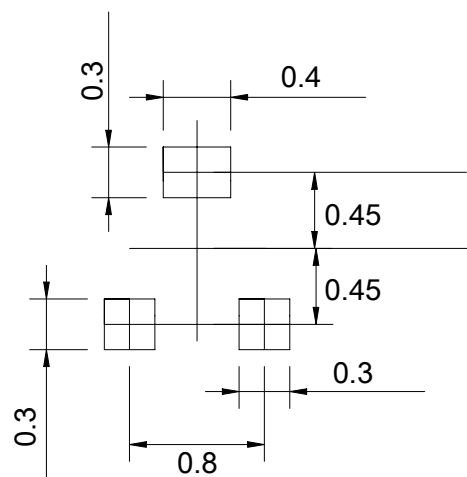


Switching Time Test Circuit and Waveforms





SYMBOL	SOT-723			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	0.500	-	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	-	0.150	-	0.006
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800 TYP.		0.031 TYP.	
L	0.32 BSC		0.013 BSC	
-	° REF.		° REF.	

RECOMMENDED LAND PATTERN


UNIT: mm