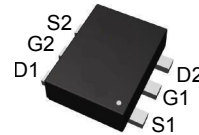


Features

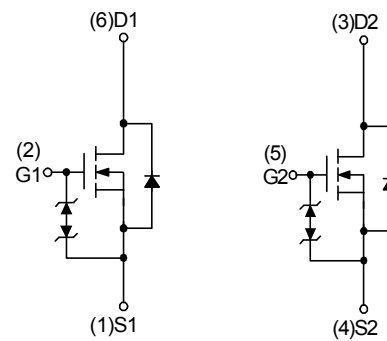
- 30V/0.8A,
 $R_{DS(ON)} = 0.6\Omega(\text{typ.}) @ V_{GS} = 4.5V$
 $R_{DS(ON)} = 1.2\Omega(\text{typ.}) @ V_{GS} = 2.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- ESD Protection



Top View of SOT-563

Applications

- High Speed and Analog Switching Applications
- Low voltage drive (2.5V drive)



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		30	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	0.8	A
I _D	Continuous Drain Current	T _A =25°C	0.8	
		T _A =70°C	0.6	
I _{DM} ^a	Pulsed Drain Current	T _A =25°C	1.3	
P _D ^b	Maximum Power Dissipation	T _A =25°C	0.81	W
		T _A =70°C	0.5	
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	t ≤ 10s	120	°C/W
		Steady State	155	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.1mH	0.5	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.1mH	0.012	mJ

Note a : Pulse width is limited by maximum junction temperature.

Note b : $R_{\theta JA}$ steady state $t = 999\text{s}$.

Note c : UIS tested and pulse width limited by maximum junction temperature (initial temperature $T_J = 25^\circ\text{C}$).

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

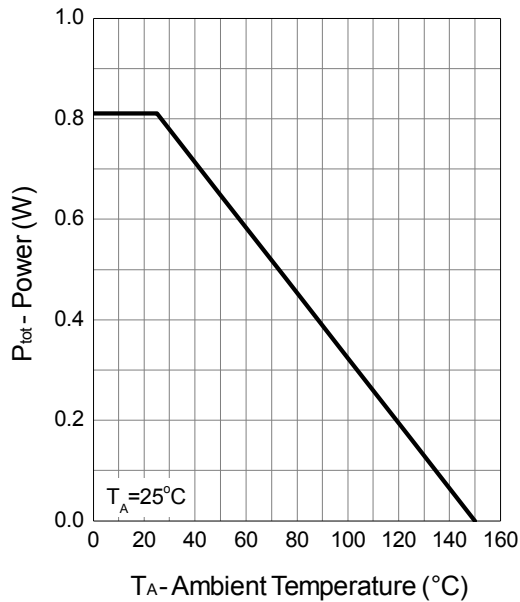
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.8	1.1	1.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	±2	±9	μA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =4.5V, I _{DS} =0.4A	-	0.6	0.8	Ω
		V _{GS} =2.5V, I _{DS} =0.3A	-	1.2	1.4	
G _{fs}	Forward Transconductance	V _{DS} =3 , I _D =10mA	-	0.9	-	S
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =0.4A, V _{GS} =0V	-	0.85	1.1	V
t _{rr}	Reverse Recovery Time	I _{sd} =1A, dI _{SD} /dt=100A/μs	-	8.6	-	ns
Q _{rr}	Reverse Recovery Charge		-	2.7	-	nC
Dynamic Characteristics ^e						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	6	-	pF
C _{oss}	Output Capacitance		-	4.5	-	
C _{rss}	Reverse Transfer Capacitance		-	2	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =10Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	1.4	-	ns
t _r	Turn-on Rise Time		-	11.8	-	
t _{d(OFF)}	Turn-off Delay Time		-	8	-	
t _f	Turn-off Fall Time		-	2	-	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =1A	-	1.6	-	nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =1A	-	0.7	-	
Q _{gth}	Threshold Gate Charge		-	0.2	-	
Q _{gs}	Gate-Source Charge		-	0.54	-	
Q _{gd}	Gate-Drain Charge		-	0.03	-	

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

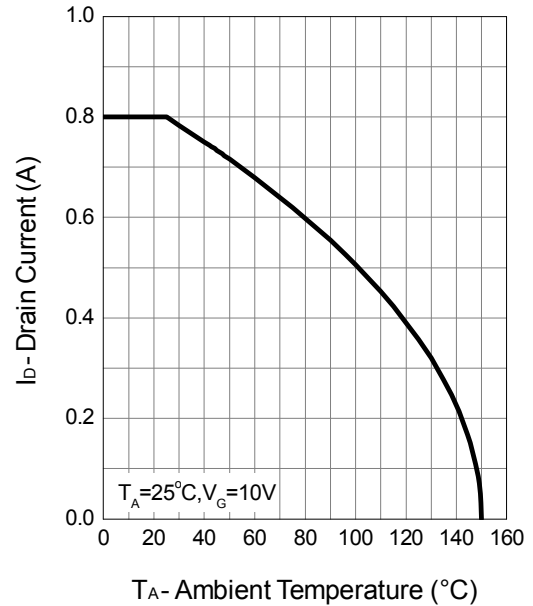
Note e : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

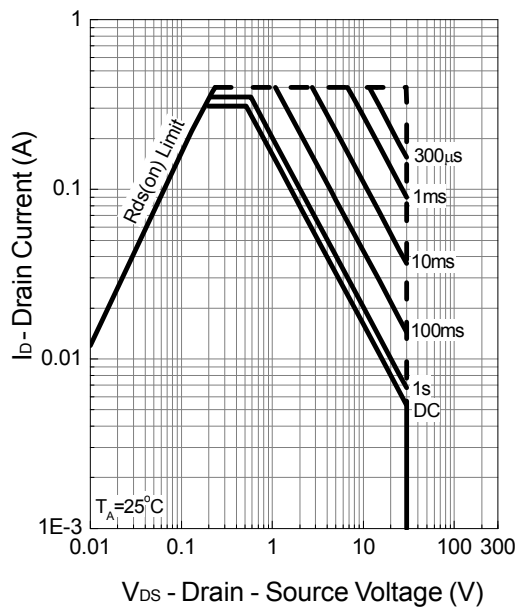
Power Dissipation



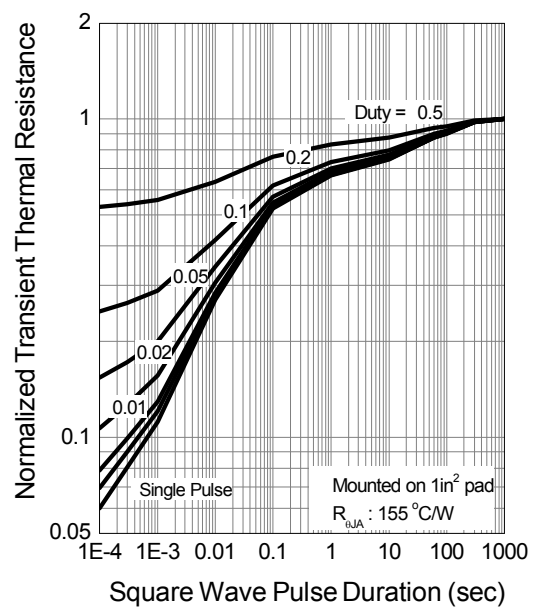
Drain Current



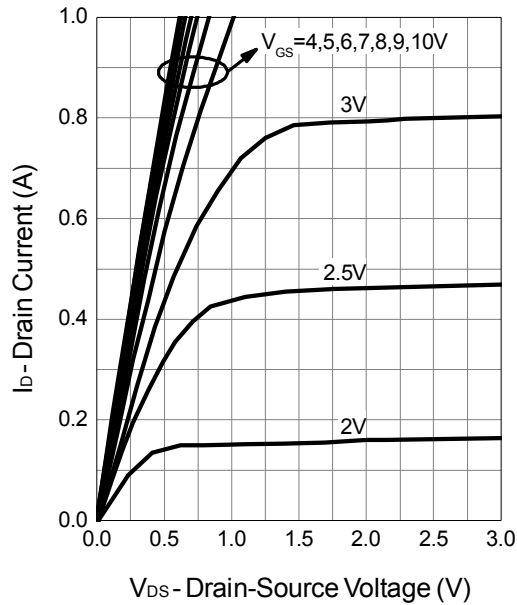
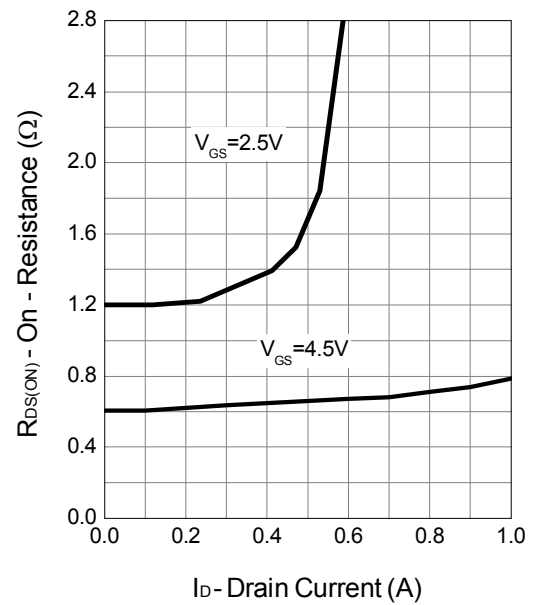
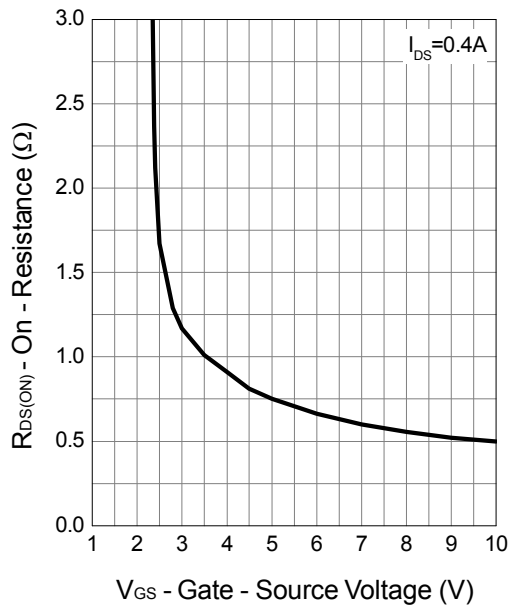
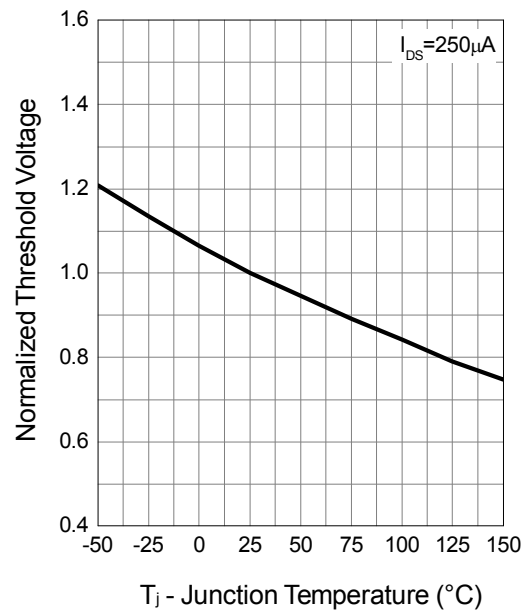
Safe Operation Area



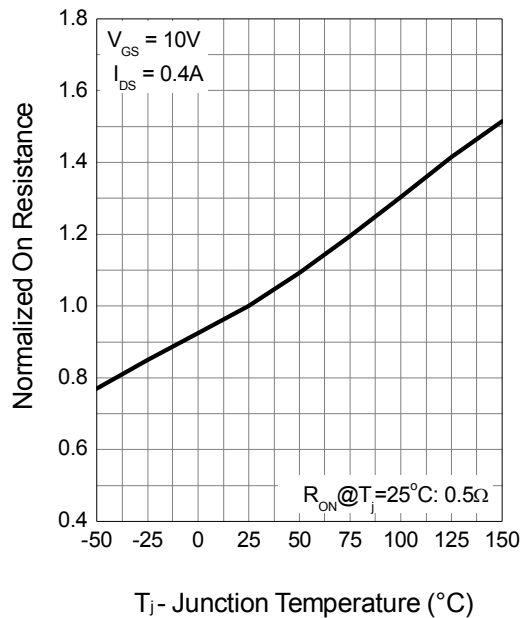
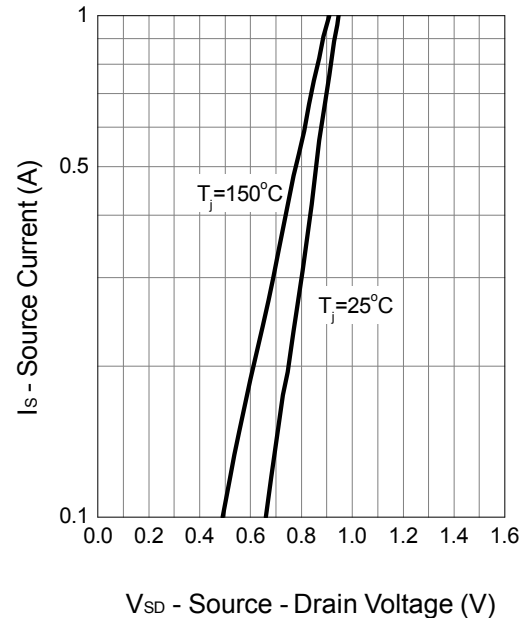
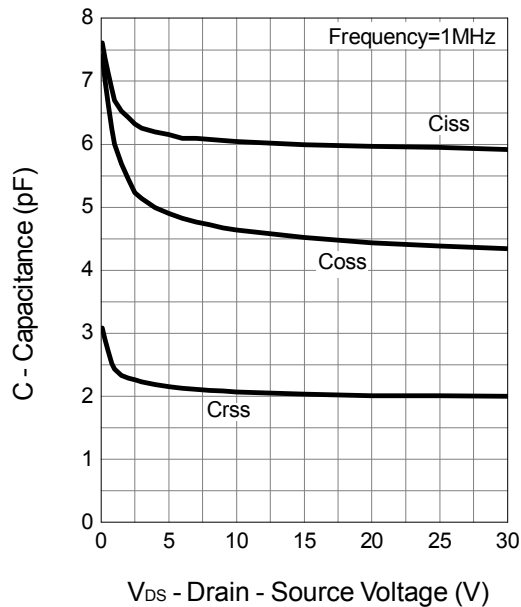
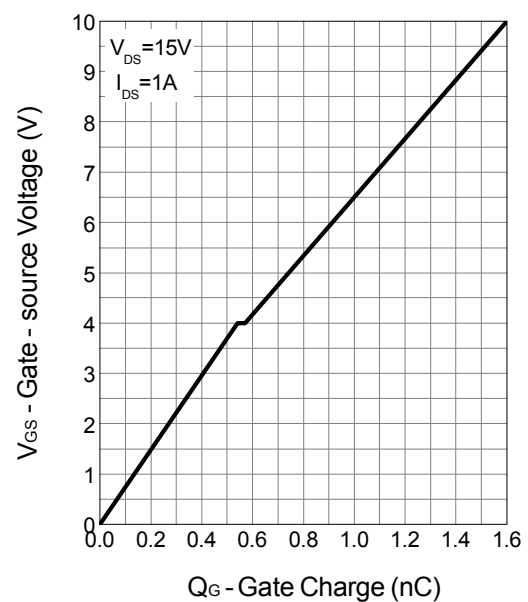
Thermal Transient Impedance



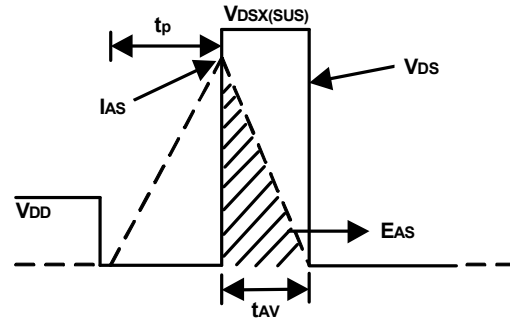
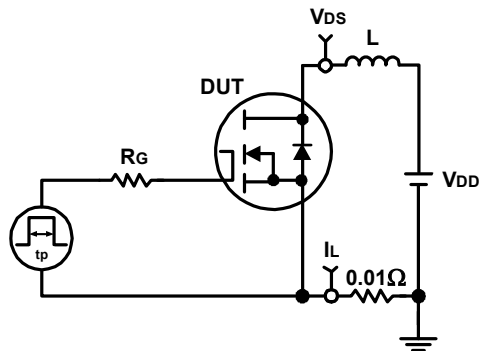
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


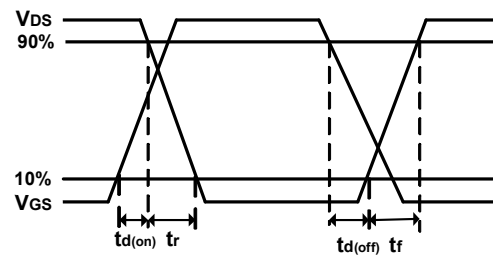
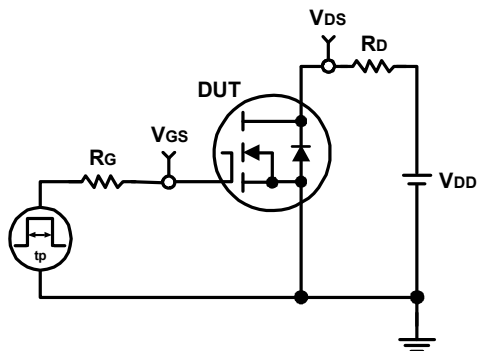
Typical Operating Characteristics (Cont.)

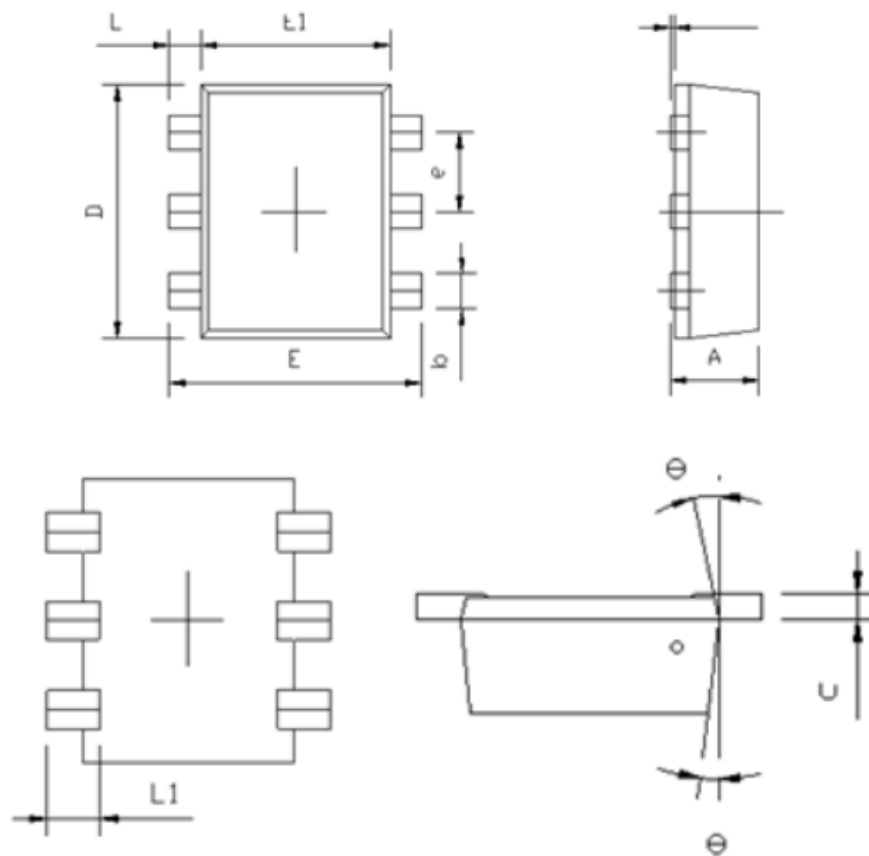
Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms





SYMBOLS	SOT-563			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.525	0.600	0.021	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.160	0.004	0.006
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E1	1.100	1.300	0.043	0.051
E	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	7° REF.		7° REF.	

RECOMMENDED LAND PATTERN

