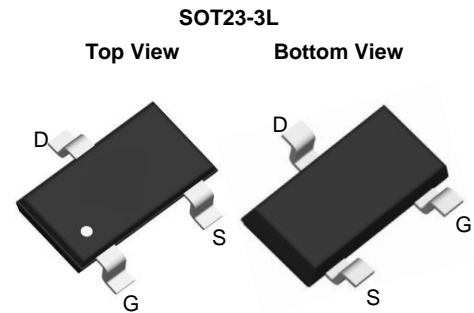


P-Channel Enhancement Mode MOSFET

Features

- -30V / -4.3A
- $R_{DS(ON)}=33m\Omega$ (typ) @VGS=10V
 $R_{DS(ON)}=55m\Omega$ (typ) @VGS=4.5V
- 100% UIS & RG Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

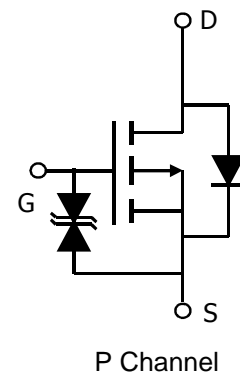


Applications

- Power Management for Industrial DC/DC Converters

Marking

Marking	X7****
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Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

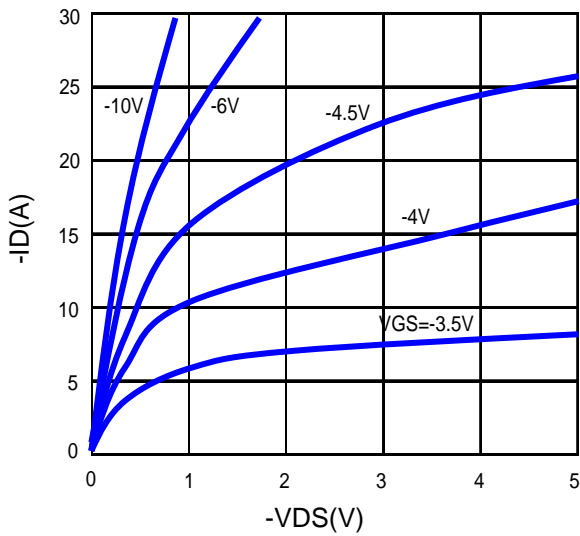
Symbol	Parameter	Rating	Unit	
Common Ratings				
V_{DSS}	Drain-Source Voltage	-30	V	
V_{GSS}	Gate-Source Voltage	± 20		
I_D	Continuous Drain Current ($V_{GS}=-4.5V$)	$T_J=150^\circ\text{C}$ -4.3	A	
I_{DM}	Pulsed Drain Current	-25		
I_S	Diode Continuous Forward Current	-2	A	
T_{STG}, T_j	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
P_D	Power Dissipation	$T_A=25^\circ\text{C}$	1.4	W
		$T_A=70^\circ\text{C}$	0.9	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient ⁽⁴⁾	120	$^\circ\text{C/W}$	

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

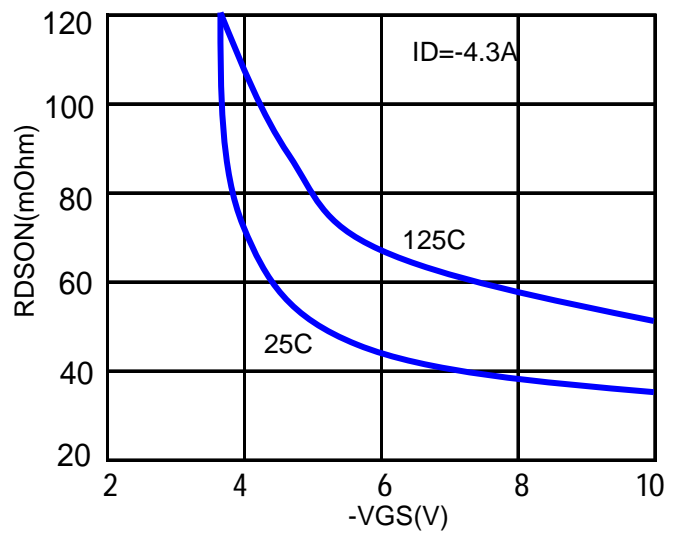
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
		V _{DS} =-30V, V _{GS} =0V, T	-	-	-10	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-2.2	-	-1.2	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} =-4.3A	-	50	65	mΩ
		V _{GS} =-4.5V, I _{DS} =-3A	-	65	75	
		V _{GS} =-2.5V, I _{DS} =-2.5A	-	66	85	
Body Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1.0	V
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, Frequency=1.0MHz	-	655	-	pF
C _{oss}	Output Capacitance		-	195	-	
C _{rss}	Reverse transfer capacitance		-	82	-	
t _{d(ON)}	Turn-on delay Time	V _{GS} =-10V, V _{DS} =-15V R _G =6Ω, I _D =-1A R _L =15Ω	-	12	-	nS
t _r	Turn-on rise Time		-	6	-	
t _{d(OFF)}	Turn-off delay Time		-	26	-	
t _f	Turn-off rise Time		-	11	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _{DS} =-4A	-	9	-	nC
Q _{gs}	Gate-Source Charge		-	2	-	
Q _{gd}	Gate-Drain Charge		-	3.5	-	

■ **TYPICAL CHARACTERISTICS** (25°C Unless Note)

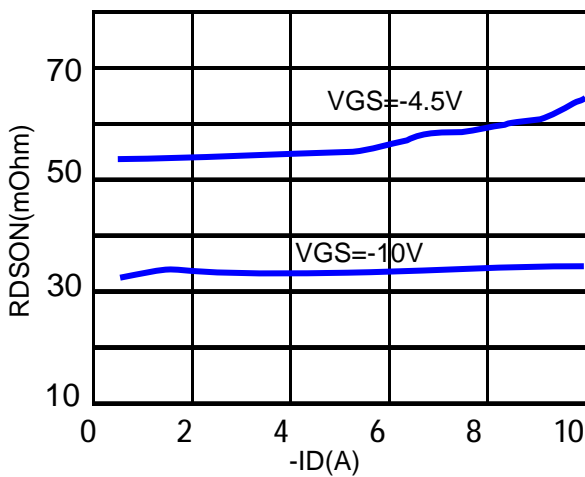
Output Characteristics



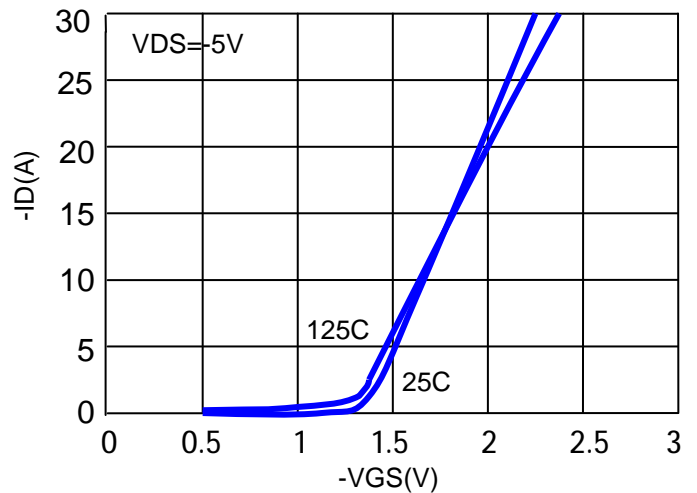
Drain-Source On Resistance



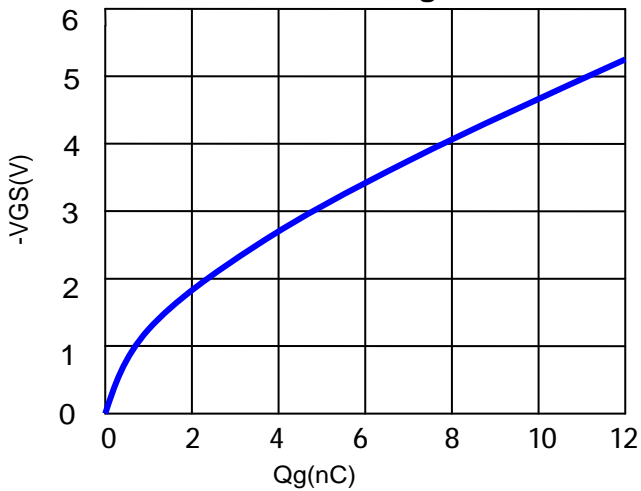
Drain-Source On Resistance



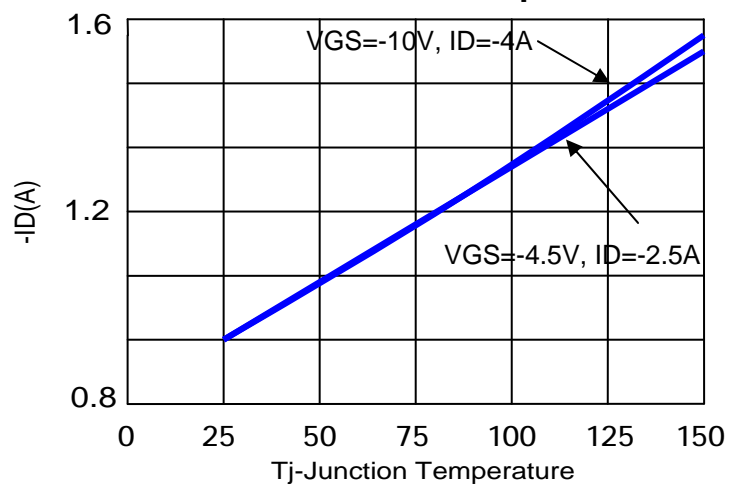
Transfer Characteristics



Gate Charge

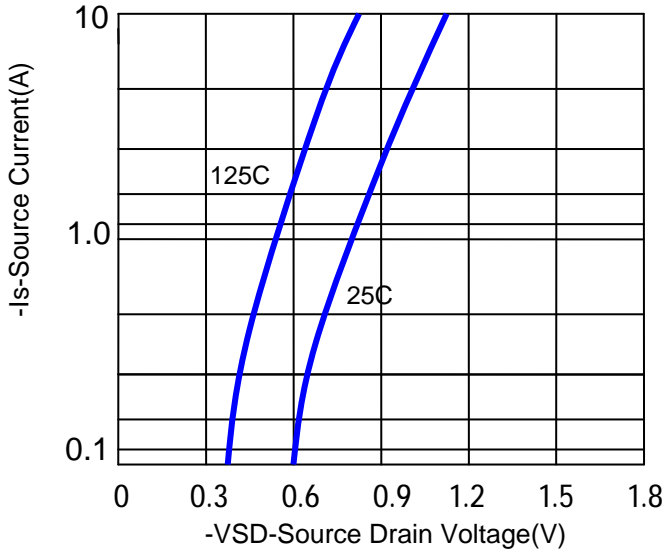


RON @ Junction Temperature

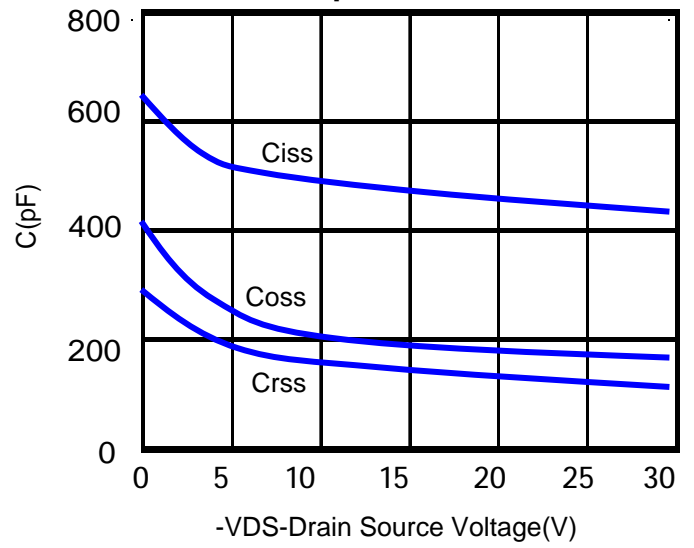


■ **TYPICAL CHARACTERISTICS** (continuous)

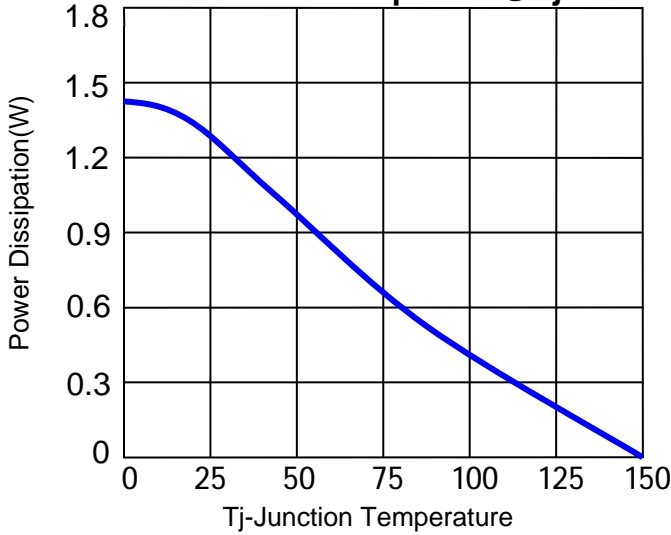
Source Drain Diode Forward



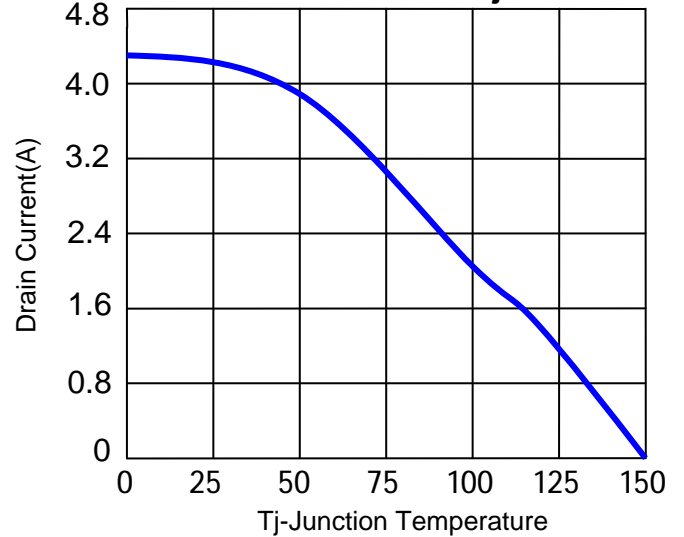
Capacitance



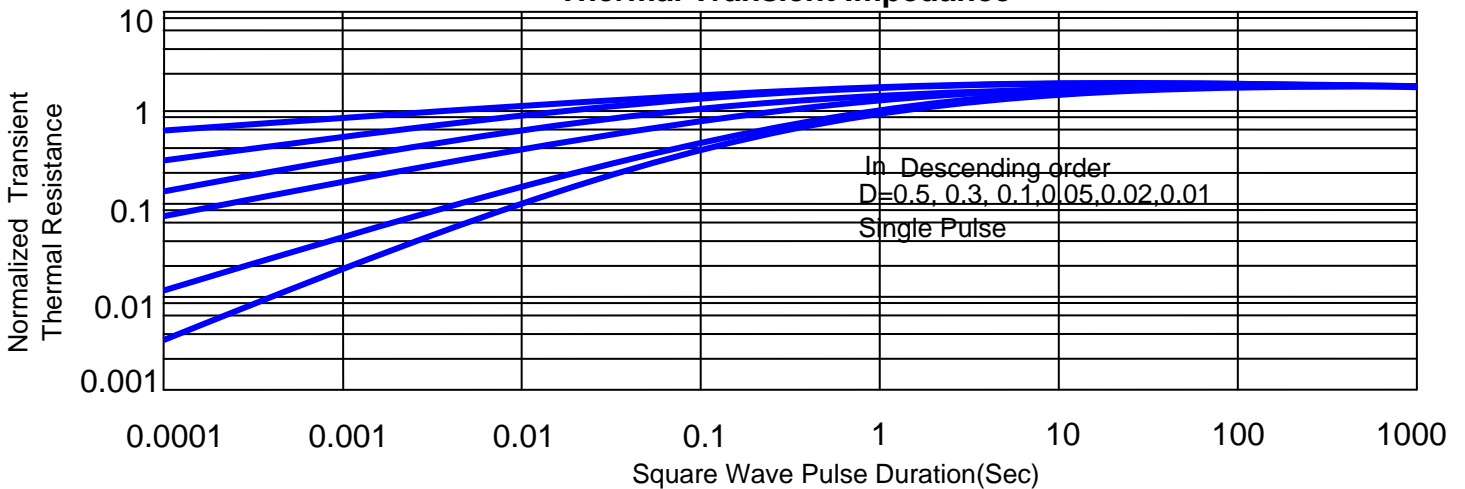
Power Dissipation @ Tj



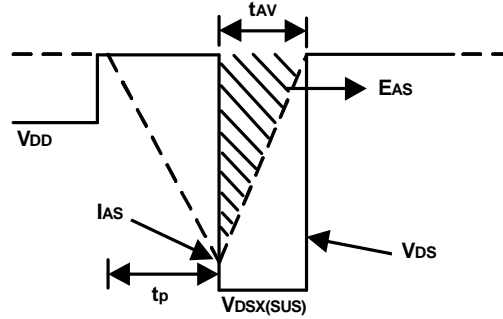
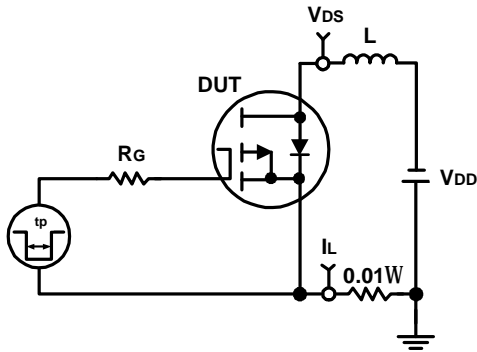
Drain Current @ Tj



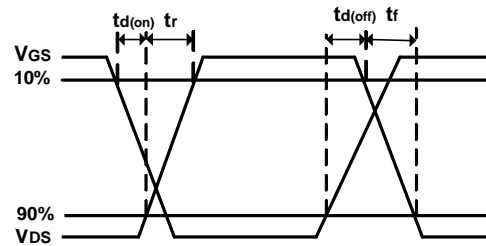
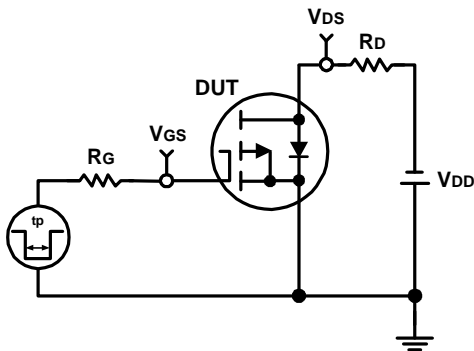
Thermal Transient Impedance



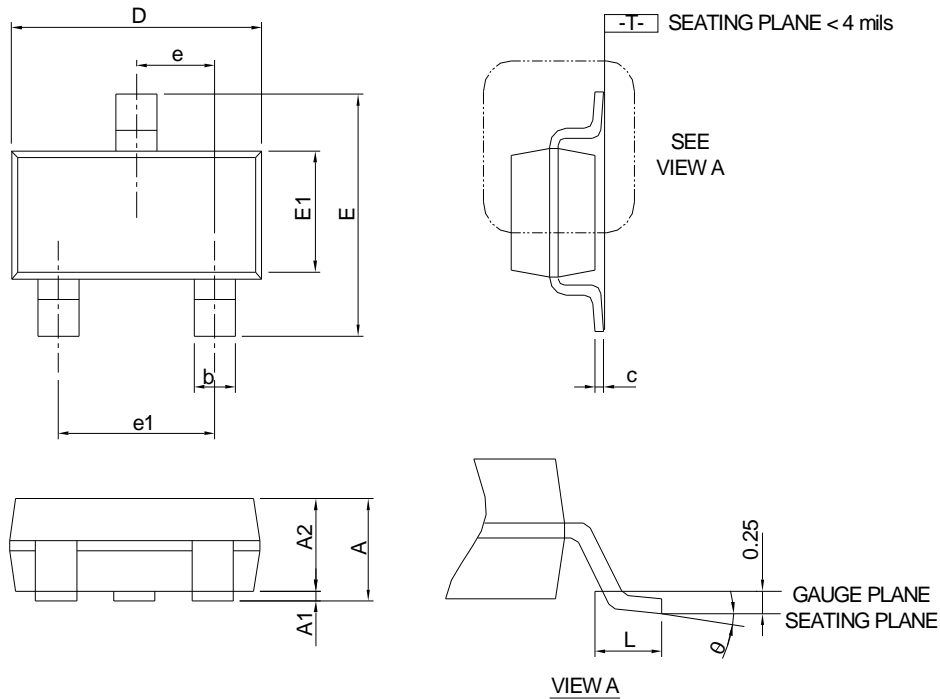
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

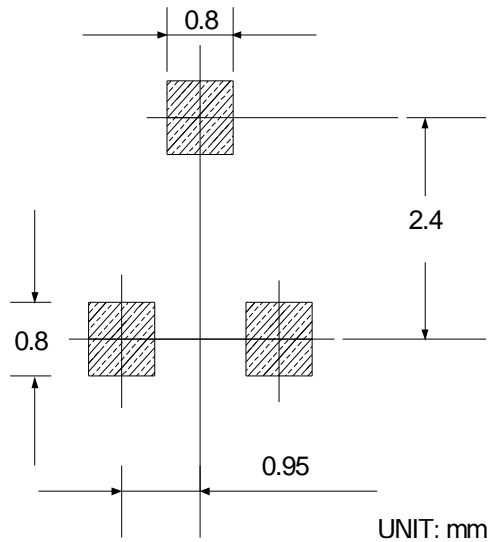


■ SOT23-3L PACKAGE OUTLINE DIMENSIONS



SYMBOL	SOT23-3			
	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	2.60	3.00	0.102	0.118
E1	1.40	1.80	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.

Attention

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