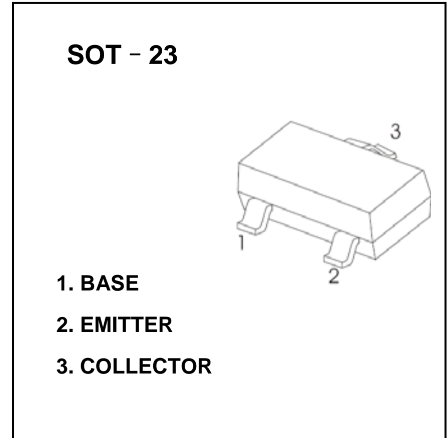
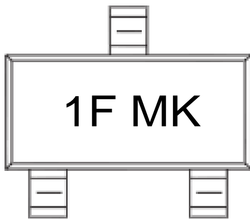
P-Channel Enhancement MOSFET

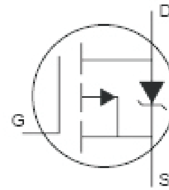
■ Features

- Ultra low on-resistance.
- P-Channel MOSFET.
- Fast switching.



MARKING





■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-12	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current V_{GS}=4.5V @ T_A=25℃	I_D	-4.3	A
Continuous Drain Current VGS=4.5V@ T_A=70℃		-3.4	
Pulsed Drain Current a	I_{DM}	-34	
Power Dissipation @ TA=25℃	P_D	1.3	W
Power Dissipation @ TA=70℃		0.8	
Single Pulse Avalanche Energy b	E_{AS}	33	mJ
Thermal Resistance.Junction- to-Ambient	R_{thJA}	100	℃/W
Linera Derating Factor		0.01	W/℃
Junction Temperature	T_J	150	℃
Junction and Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

a.Repetitive Rating :Pulse width limited by maximum junction temperature

b.Starting T_J=25℃, L=3.5mH, R_G=25Ω, I_{AS}=-4.3A

P-Channel Enhancement MOSFET

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-12			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-12V, V_{GS}=0V			-1	μA
		V_{DS}=-9.6V, V_{GS}=0V, T_J= 55℃			-25	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-0.4	-0.55	-0.95	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-4.3A			50	mΩ
		V_{GS}=-2.5V, I_D=-2.5A			85	
		V_{GS}=-1.8V, I_D=-2A			125	
Forward Transconductance	g_{FS}	V_{DS}=-10V, I_D=-4.3A	8.6			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, f=1MHz		830		pF
Output Capacitance	C_{oss}			180		
Reverse Transfer Capacitance	C_{rss}			125		
Total Gate Charge	Q_g	V_{GS}=-5.0V, V_{DS}=-10V, I_D=-4.3A		10	15	nC
Gate Source Charge	Q_{gs}			1.4	2.1	
Gate Drain Charge	Q_{gd}			2.6	3.9	
Turn-On DelayTime	$t_{d(on)}$	I_D=-1.0A, V_{DS}=-6.0V, R_L=6Ω, R_{GEN}=89Ω		11		ns
Turn-On Rise Time	t_r			32		
Turn-Off DelayTime	$t_{d(off)}$			250		
Turn-Off Fall Time	t_f			210		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-1.3A, dI/dt=-100A/μs		22	33	
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=-1.3A, dI/dt=-100A/μs		8	12	Nc
Maximum Body-Diode Continuous Current	I_S				1.3	A
Diode Forward Voltage	V_{SD}	I_S=-1.3A, V_{GS}=0V			-1.2	V

■ Typical Characterisitics

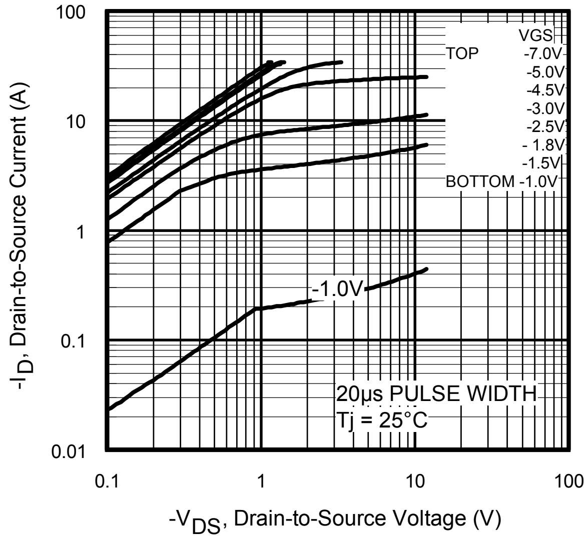


Fig 1. Typical Output Characteristics

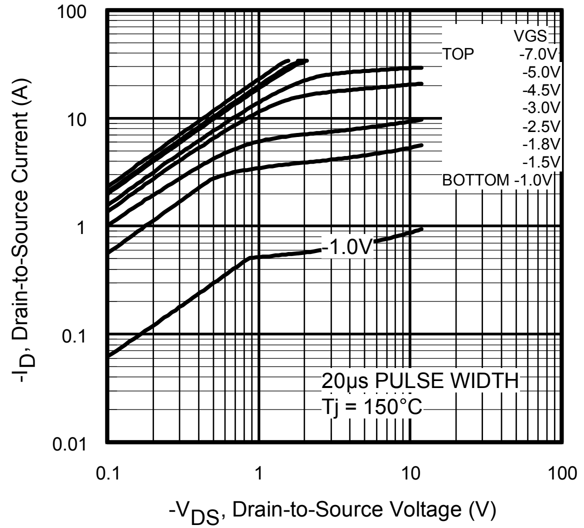


Fig 2. Typical Output Characteristics

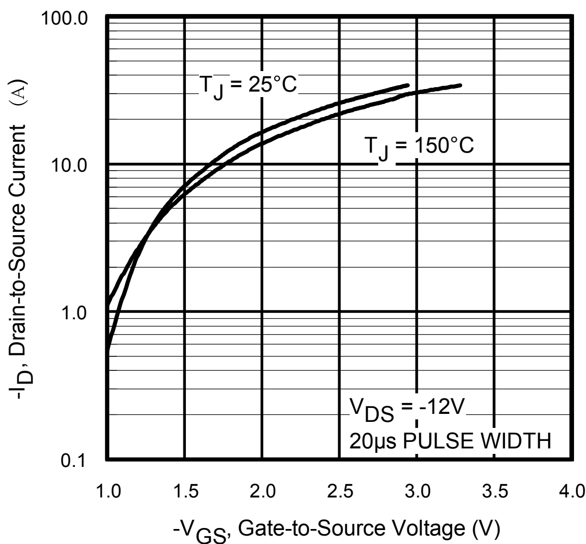


Fig 3. Typical Transfer Characteristics

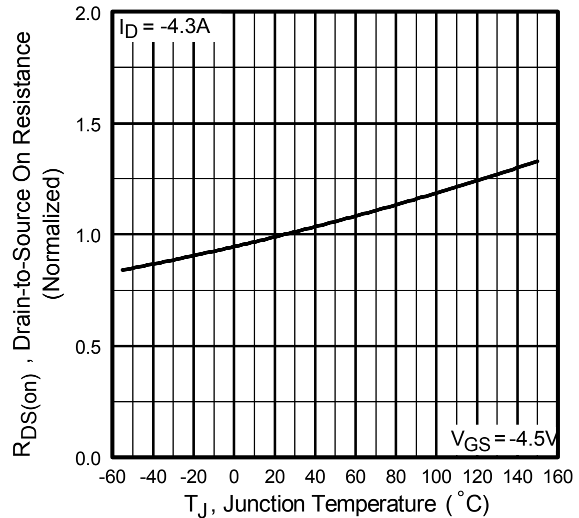


Fig 4. Normalized On-Resistance Vs. Temperature

■ Typical Characterisitics

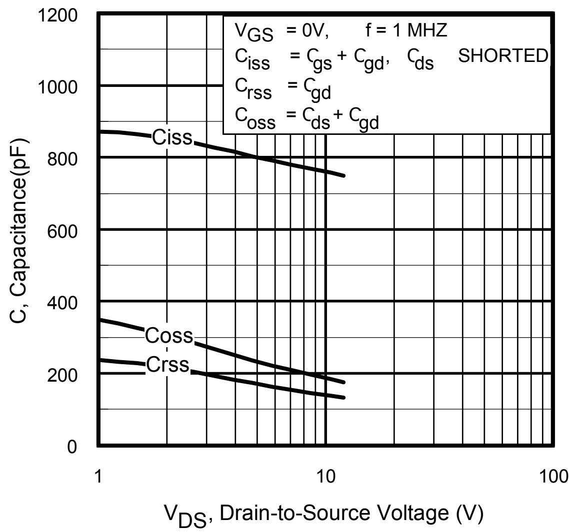


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

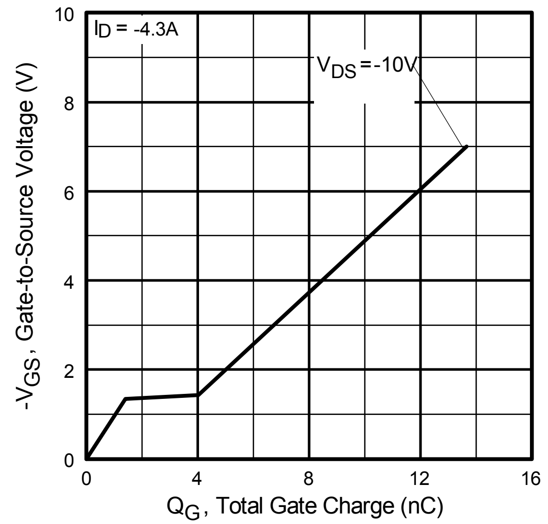


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

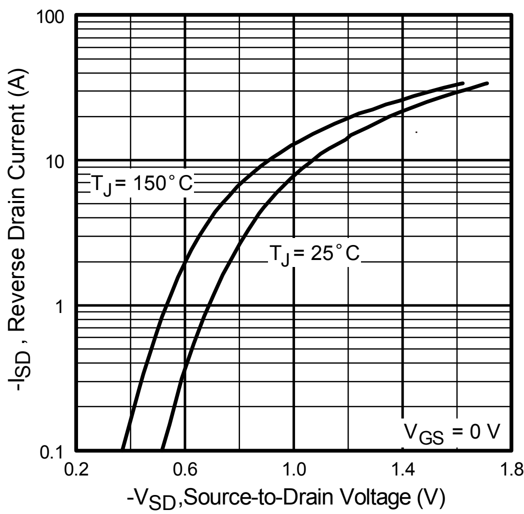


Fig 7. Typical Source-Drain Diode Forward Voltage

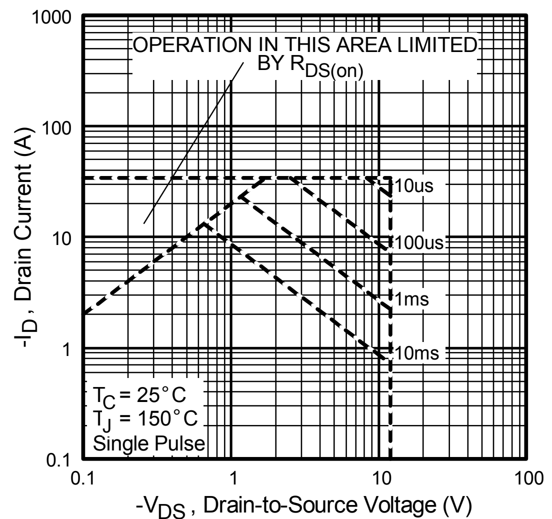


Fig 8. Maximum Safe Operating Area

■ Typical Characterisitics

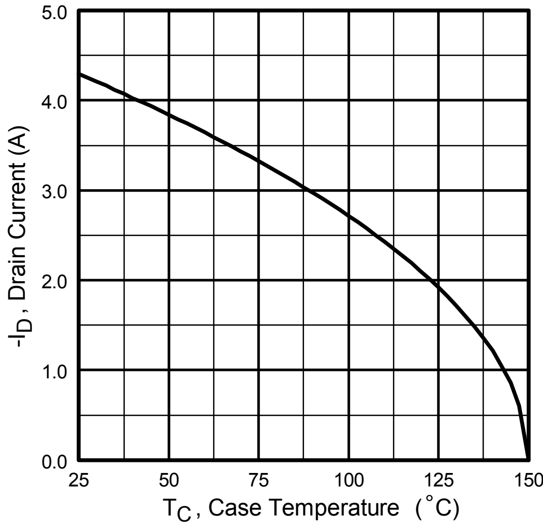


Fig 9. Maximum Drain Current Vs. Case Temperature

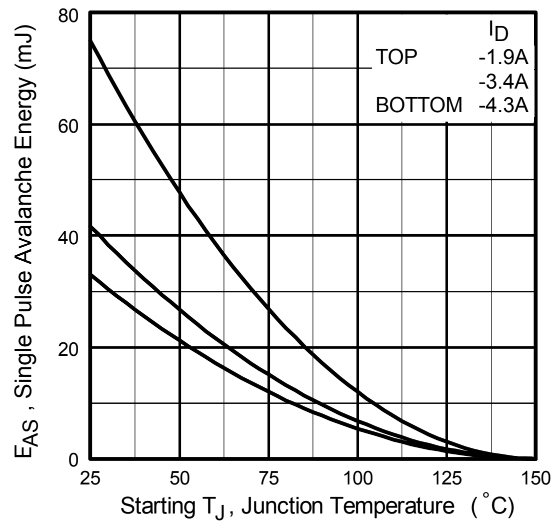


Fig 10. Maximum Avalanche Energy Vs. Drain Current

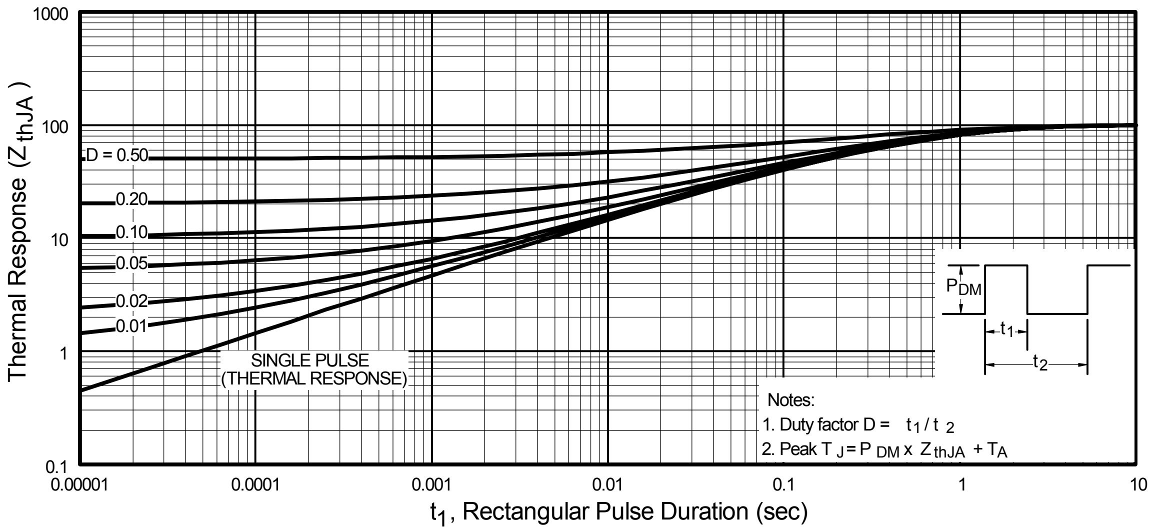


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

■ Typical Characterisitics

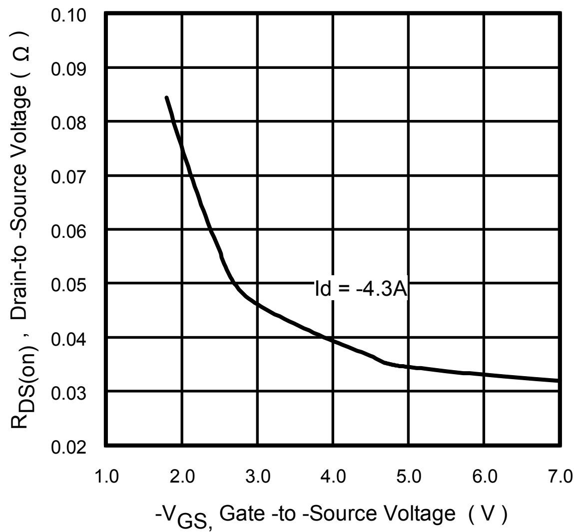


Fig 12. Typical On-Resistance Vs. Gate Voltage

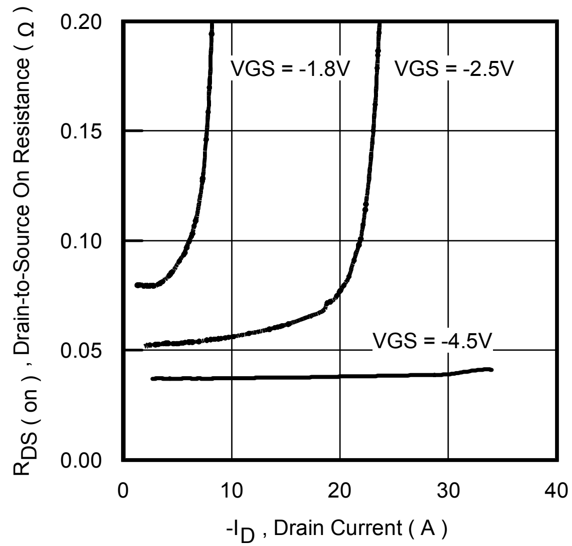


Fig 13. Typical On-Resistance Vs. Drain Current

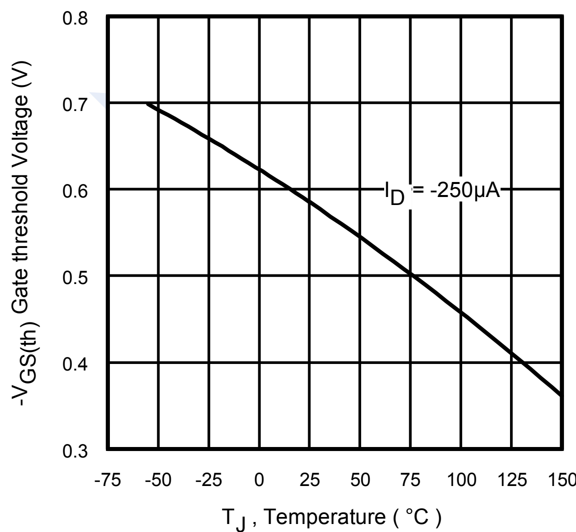
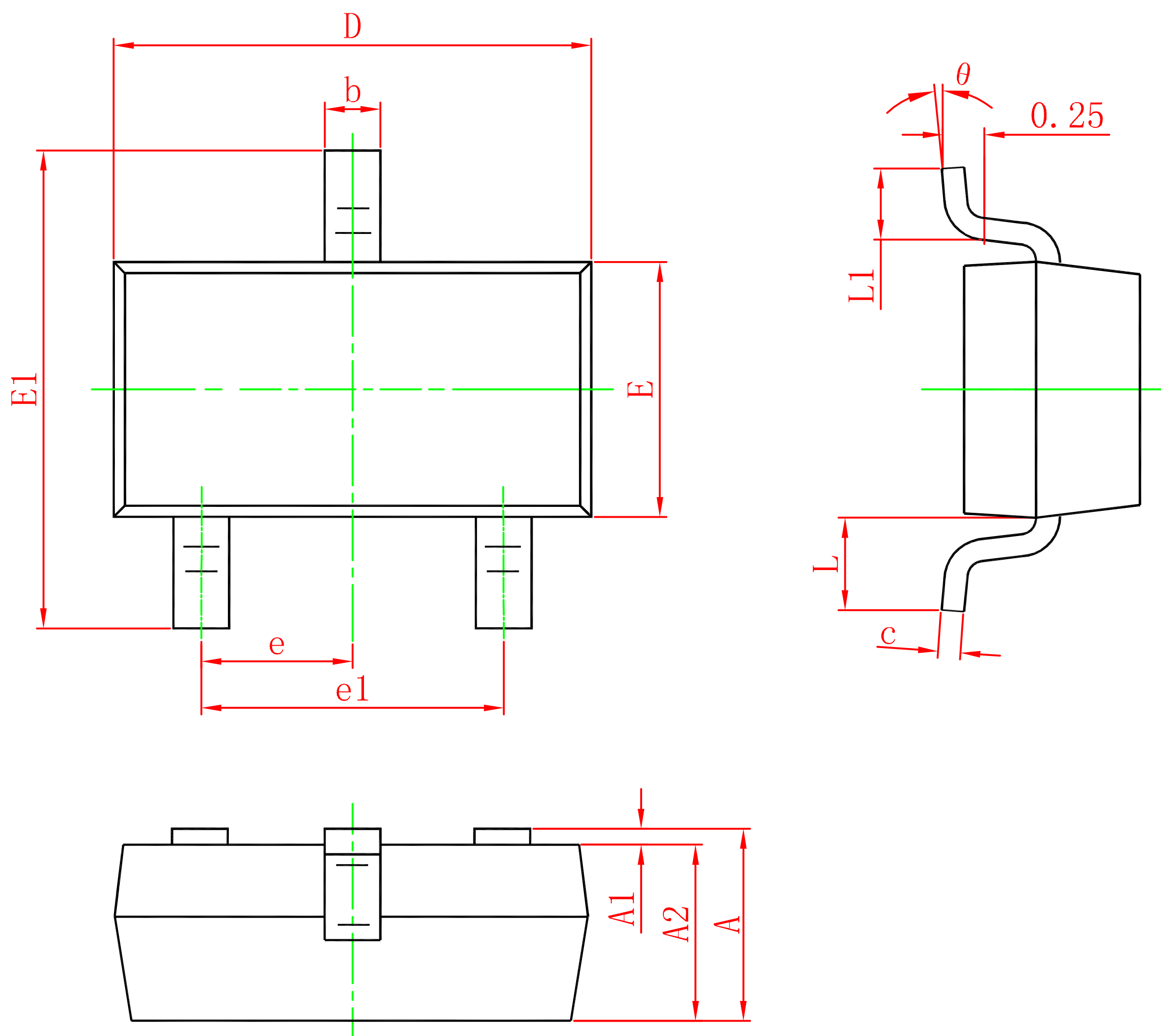


Fig 14. Typical Threshold Voltage Vs. Junction Temperature

SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°