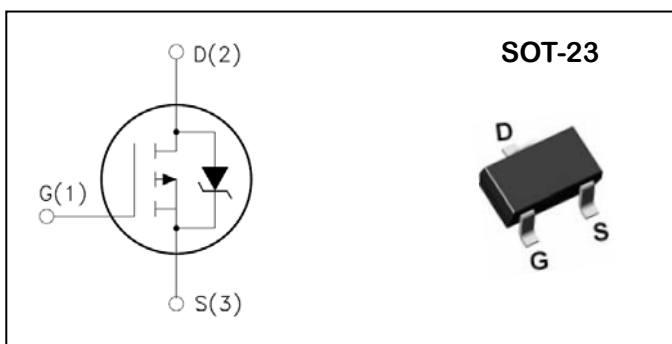


P-Channel Enhancement Mode Field Effect Transistor**PRODUCT SUMMARY**

V_{DSS}	I_D	$R_{DS(ON)} (m\Omega)$
-40V	-5A	70m Ω

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

Symbol	Parameter		Ratings	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-40	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current (3)	T _C =25°C	-1.5	A
Mounted on Large Heat Sink				
I _{DM}	300μs Pulse Drain Current Tested(1)	T _C =25°C	-15	A
I _D	Continuous Drain Current	T _C =25°C	-5	A
P _D	Maximum Power Dissipation (3)		1.4	W

1. Pulse width limited by maximum junction temperature.

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
R_{thJA}	Thermal resistance junction-ambient max (3)	89	$^\circ\text{C/W}$

Electrical Characteristics (TA=25°C Unless Otherwise Noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
On/off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250uA	-40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 40V, V _{GS} =0V	--	--	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250uA	-1.1	-1.65	-2.3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
R _{DS(ON)}	Drain-SourceOn-stateResistance ⁽²⁾	V _{GS} = -10V, I _{DS} =-3A	--	70	85	mΩ
		V _{GS} = -4.5V, I _{DS} =-2A	--	95	120	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = -20V, Frequency=1.0MHz	--	600	--	pF
C _{oss}	Output Capacitance		--	90	--	
C _{rss}	Reverse Transfer Capacitance		--	70	--	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time ⁽¹⁾	V _{DD} =-20V, I _D =-3A, V _{GS} =-10V, R _{GEN} =3 Ω	--	9	--	ns
t _r	Turn-on Rise Time ⁽¹⁾		--	8	--	
t _{d(OFF)}	Turn-off Delay Time ⁽¹⁾		--	2.5	--	
t _f	Turn-off Fall Time ⁽¹⁾		--	9	--	
Q _g	Total Gate Charge ⁽¹⁾	V _{DS} =-20V, V _{GS} = -10V, I _{DS} =-3A	--	14	--	nC
Q _{gs}	Gate-Source Charge ⁽¹⁾		--	2.9	--	
Q _{gd}	Gate-Drain Charge ⁽¹⁾		--	3.8	--	
Diode Characteristics						
V _{SD}	Diode Forward Voltage ⁽²⁾	I _{SD} = -5A, V _{GS} = 0	--	--	-1.2	V

NOTES:

1. Independent of operating temperature.
2. Pulse Test : Pulse width ≤ 300 μs, Duty cycle ≤ 2%
3. Surface Mounted on FR4 Board, t < 10 sec.

Typical Performance Characteristics

Figure 1: Output Characteristics

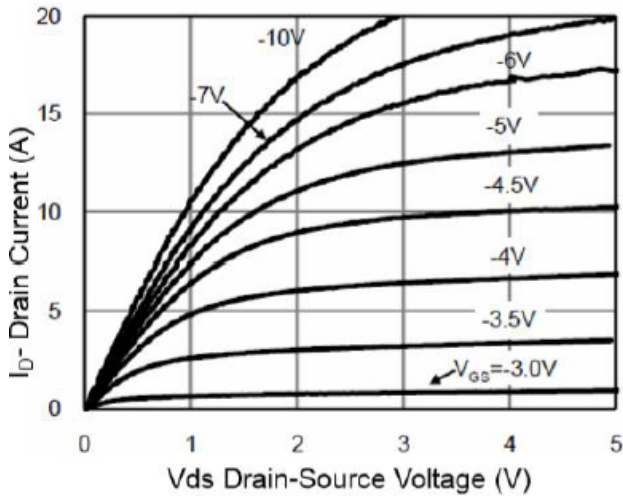


Figure 2: Source-Drain Diode Forward

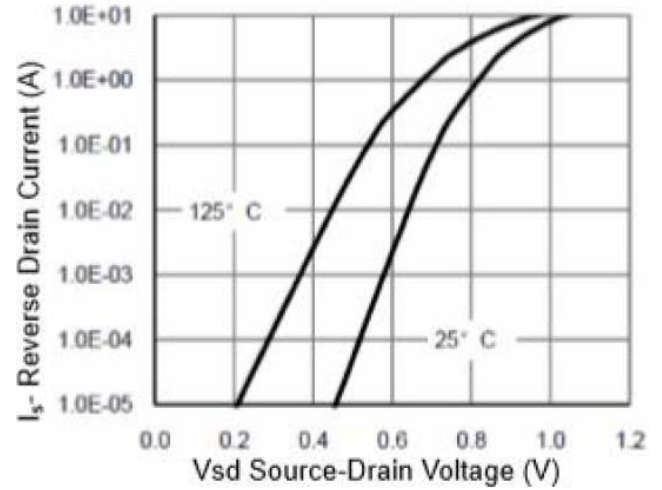


Figure 3: Power Dissipation

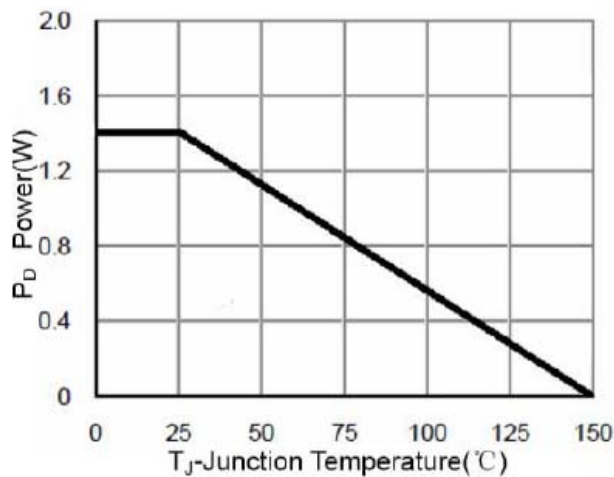


Figure 4: On-Resistance Drain-Source

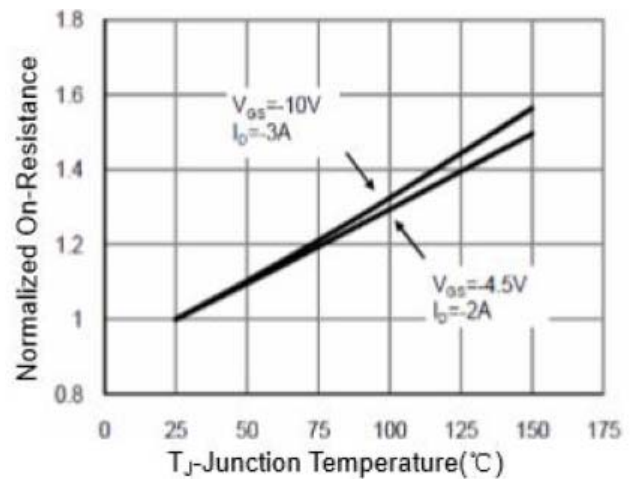


Figure 5: Drain Current.

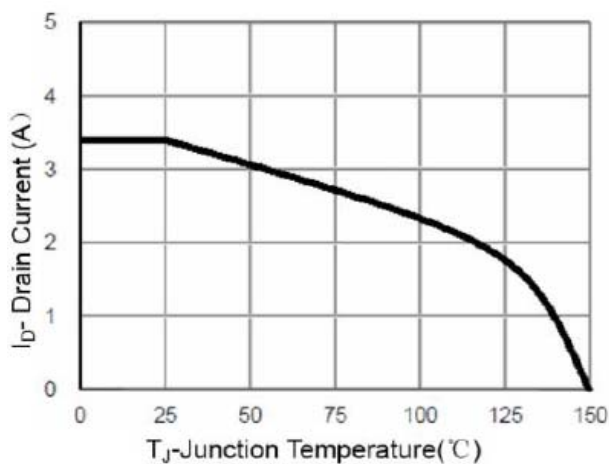


Figure 6: On-Resistance vs. Drain Current and Gate Voltage

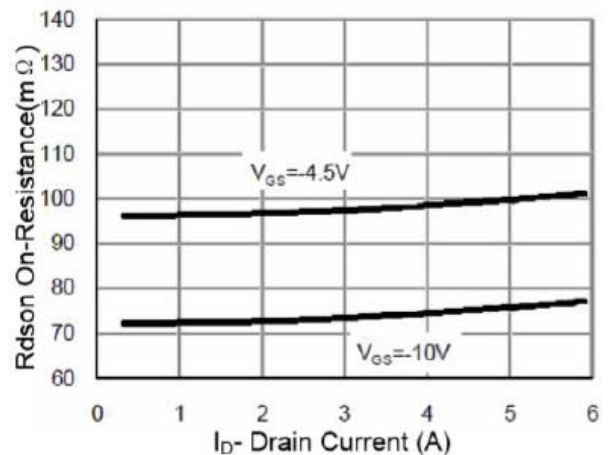


Figure 7: Gate Charge

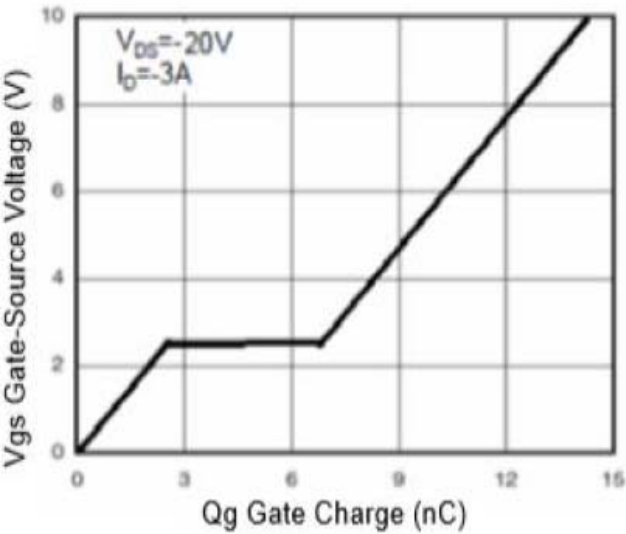


Figure 8: Maximum Safe Operating Area

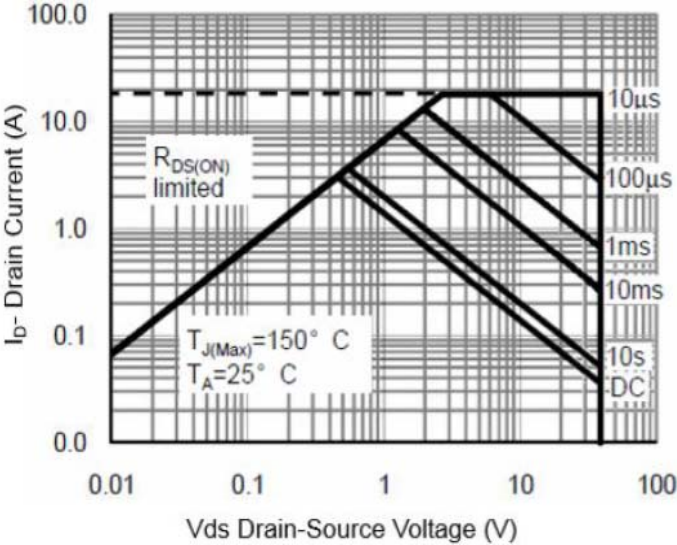


Figure 9: Capacitance Characteristics.

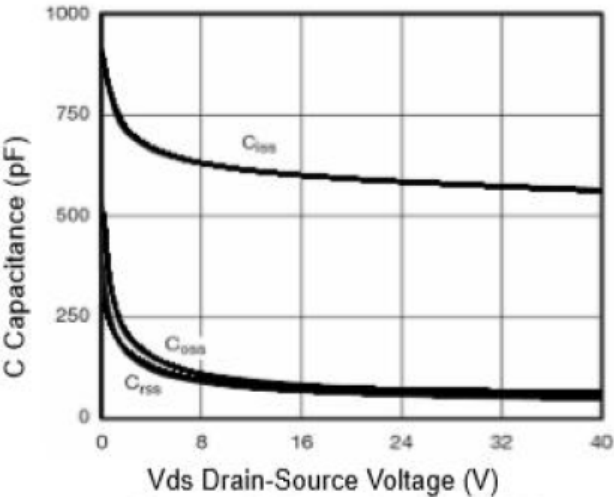


Figure 10: Switching Time Waveform

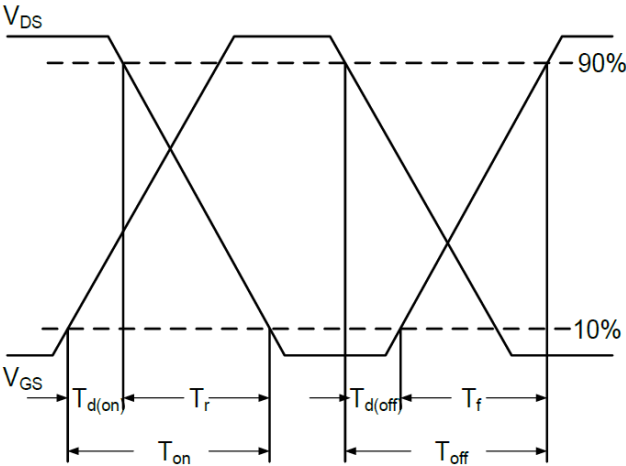
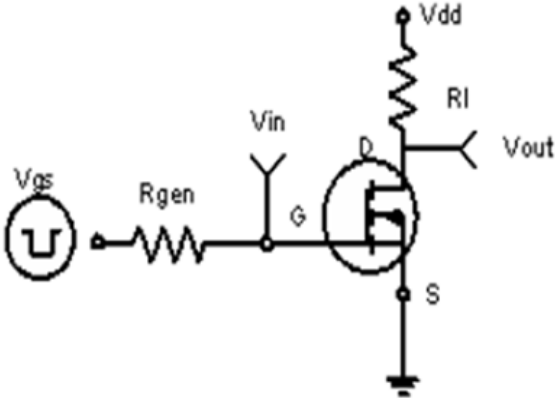
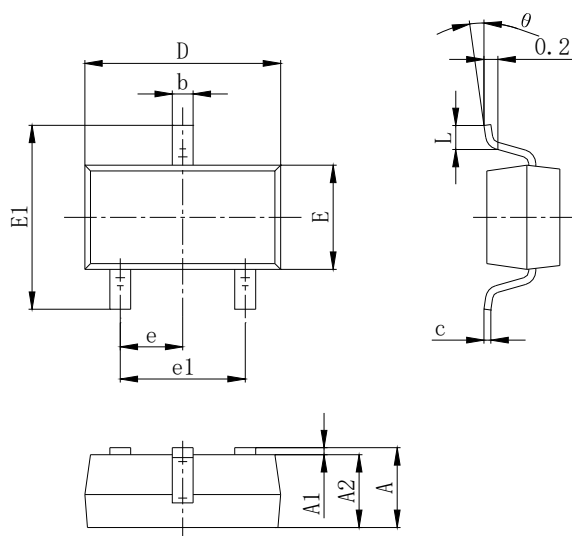


Figure 11: Switching Test Circuit



PACKAGE MECHANICAL DATA
SOT-23 Package Dimension



Sym bol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.850	1.250	0.033	0.049
A1	0.000	0.130	0.000	0.005
A2	0.700	1.150	0.028	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.800	3.100	0.110	0.122
E	1.400	1.800	0.055	0.071
E1	2.600	3.000	0.102	0.118
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
θ	0°	8°	0°	8°