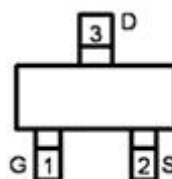
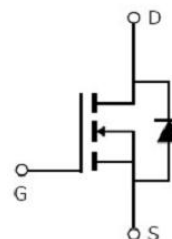


Main Product Characteristics:

V_{DSS}	60V
$R_{DS(on)}$	75mΩ(typ)
I_D	3A


SOT-23

Pin Assignments

Schematic Diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

Absolute Max Rating:

Symbol	Parameter	Max.	Units
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$ ①	3	A
I_{DM}	Pulsed Drain Current ②	12	
$P_D @ T_C = 25^\circ C$	Power Dissipation ③	2	W
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	± 20	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to + 150	°C

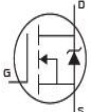
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-Ambient (t ≤ 10s) ^④	—	83	°C/W

Electrical Characteristics @T_J=25°C unless otherwise specified

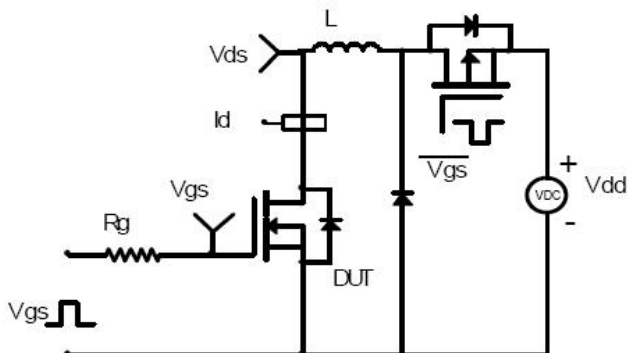
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	60	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	75	100	mΩ	V _{GS} =10V, I _D = 3A
		—	85	110		V _{GS} =4.5V, I _D = 2A
V _{GS(th)}	Gate threshold voltage	1	—	2	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} =60V, V _{GS} =0V
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} =20V
	Gate-to-Source reverse leakage	—	—	-100		V _{GS} = -20V
Q _g	Total gate charge	—	9.2	—	nC	I _D = 3A
Q _{gs}	Gate-to-Source charge	—	1.4	—		V _{DD} =30V
Q _{gd}	Gate-to-Drain("Miller") charge	—	1.9	—		V _{GS} = 10V
t _{d(on)}	Turn-on delay time	—	5	—	nS	V _{GS} =10V, V _{DS} =30V, R _{GEN} =3Ω I _D =2A
t _r	Rise time	—	8	—		
t _{d(off)}	Turn-Off delay time	—	36	—		
t _f	Fall time	—	23	—		
C _{iss}	Input capacitance	—	352	—	pF	V _{GS} = 0V V _{DS} = 25V f =1MHz
C _{oss}	Output capacitance	—	30	—		
C _{rss}	Reverse transfer capacitance	—	24	—		

Source-Drain Ratings and Characteristics

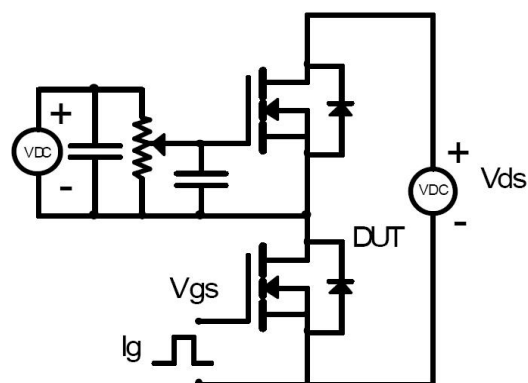
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode) ^①	—	—	3	A	MOSFET symbol Showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	12	A	
V _{SD}	Diode Forward Voltage	—	—	1.2	V	I _S =3A, V _{GS} =0V, T _J = 25°C

Test Circuits and Waveforms

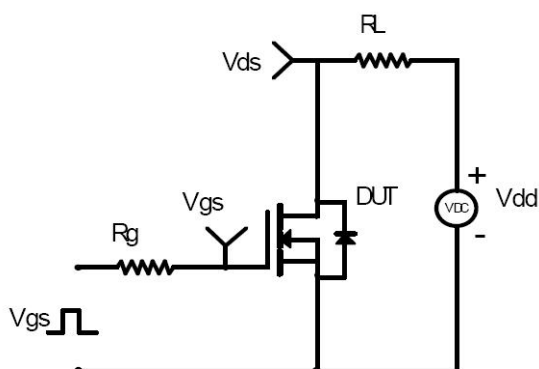
EAS Test Circuit:



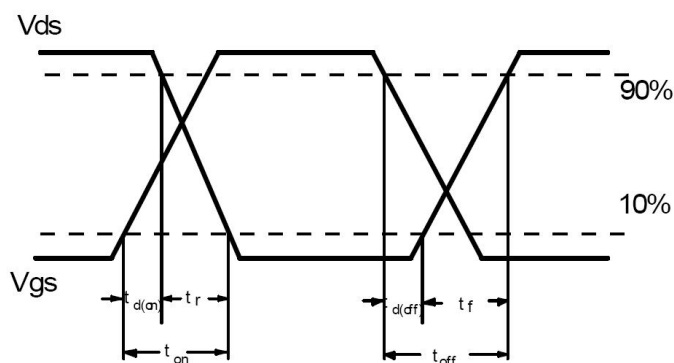
Gate Charge Test Circuit:



Switching Time Test Circuit:



Switching Waveforms:

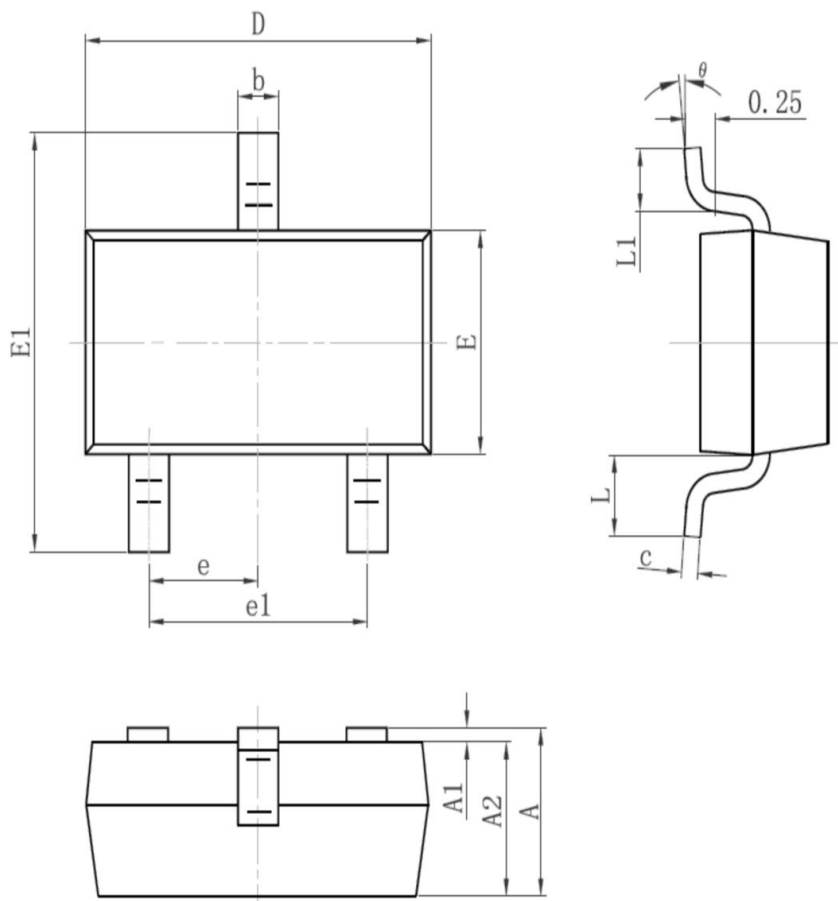


Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$

Mechanical Data:

SOT-23 PACKAGE OUTLINE DIMENSION



Symbol	Dimension In Millimeters		Dimension 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	0.95TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.55REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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