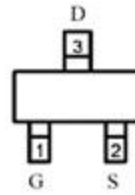


Main Product Characteristics:

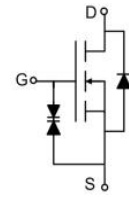
V_{DSS}	60V
$R_{DS(on)}$	2.5Ω (Max)
I_D	0.3A



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
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	0.3	A
I_{DM}	Pulsed Drain Current ②	1.2	
$P_D @ T_C = 25^\circ\text{C}$	Power Dissipation ③	0.35	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

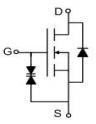
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient ④	—	357	°C/W

Electrical Characteristics @T_A=25°C unless otherwise specified

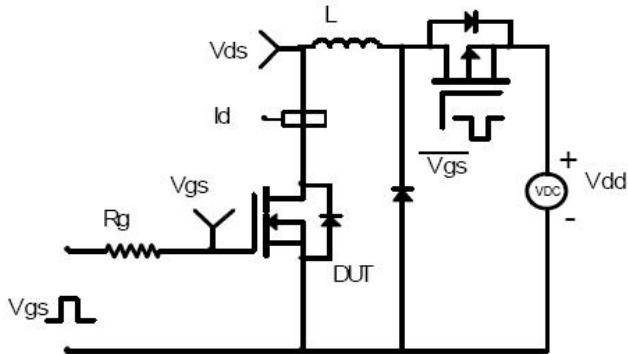
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	60	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	1.9	2.5	Ω	V _{GS} =4.5V, I _D = 0.3A
		—	2.3	4.5	Ω	V _{GS} =2.5V, I _D =0.2A
V _{GS(th)}	Gate threshold voltage	0.5	—	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	—	—	±10V	μA	V _{GS} =±20V, V _{DS} =0V
Q _g	Total gate charge	—	1.7	—	nC	V _{DS} =10V, I _D =0.3A, V _{GS} =4.5V
Q _{gs}	Gate-to-Source charge	—	0.4	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	0.6	—		
t _{d(on)}	Turn-on delay time	—	2	—	ns	V _{DD} =10V, V _{GS} =10V, I _D =0.2A R _{GEN} =10Ω
t _r	Rise time	—	15	—		
t _{d(off)}	Turn-Off delay time	—	8	—		
t _f	Fall time	—	20	—		
C _{iss}	Input capacitance	—	23	—	pF	V _{DS} =25V, V _{GS} =0V, f=1.0MHz
C _{oss}	Output capacitance	—	3.1	—		
C _{rss}	Reverse transfer capacitance	—	2.2	—		

Source-Drain Ratings and Characteristics

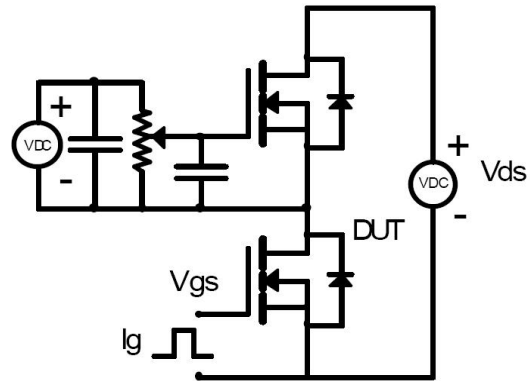
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode) ①	—	—	0.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	1.2	A	
V _{SD}	Diode Forward Voltage	—	—	1.2	V	

Test Circuits and Waveforms:

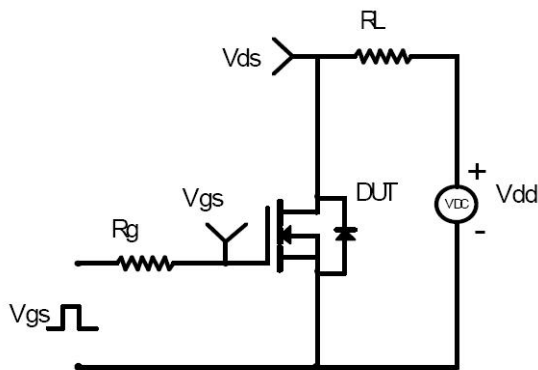
EAS Test Circuit:



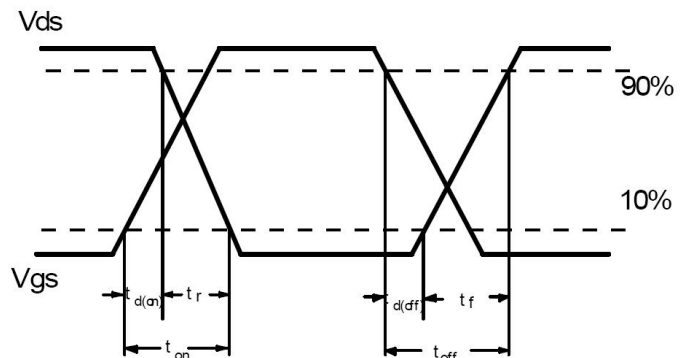
Gate Charge Test Circuit:



Switching Time Test Circuit:

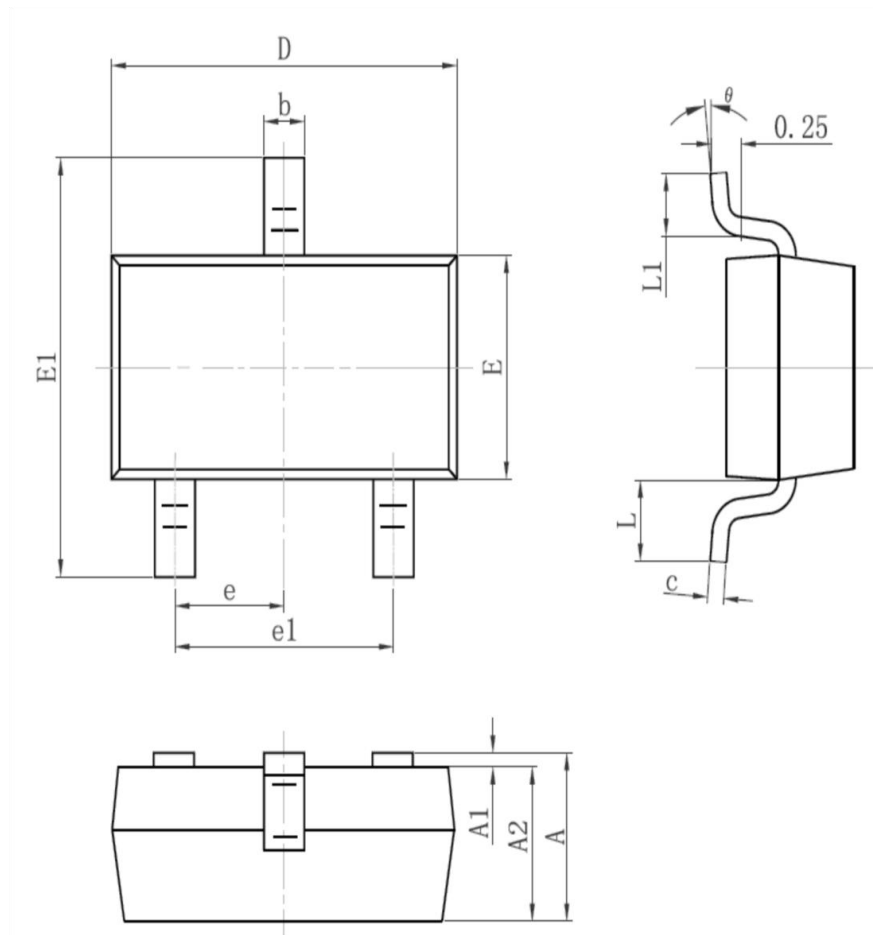


Switching Waveforms:



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 $T_A = 25^\circ \text{C}$

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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