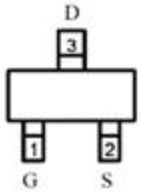
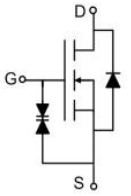
Main Product Characteristics:

V_{DSS}	60V
R_{DS}(on)	2.3Ω (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℃ 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°C	Continuous Drain Current, V_{GS} @ 10V①	0.3	A
I_{DM}	Pulsed Drain Current ②	1.2	
P_D @T_C = 25°C	Power Dissipation ③	0.35	W
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-to-Source Voltage	± 20	V
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to + 150	°C

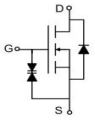
Thermal Resistance

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

Electrical Characteristics @T_A=25℃ unless otherwise specified

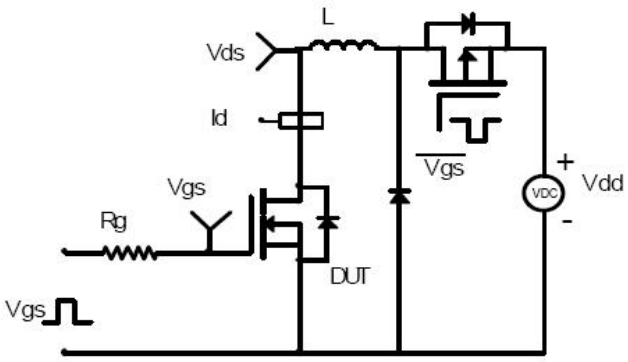
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	60	—	—	V	V_{GS} = 0V, I_D = 250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	2.1	2.87	Ω	V_{GS}=4.5V,I_D = 0.2A
		—	1.8	2.3	Ω	V_{GS}=10V, I_D=0.3A
$V_{GS(th)}$	Gate threshold voltage	1	—	2.5	V	V_{DS} = 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	—	—	±10	μA	V_{GS}=±20V,V_{DS}=0V
Q_g	Total gate charge	—	1.9	—	nC	V_{DS}=10V,I_D=0.3A, V_{GS}=4.5V
Q_{gs}	Gate-to-Source charge	—	0.3	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	0.7	—		
$t_{d(on)}$	Turn-on delay time	—	2	—	ns	V_{DD}=10V,V_{GS}=10V,I_D=0.2A R_{GEN}=10Ω
t_r	Rise time	—	16	—		
$t_{d(off)}$	Turn-Off delay time	—	8	—		
t_f	Fall time	—	21	—		
C_{iss}	Input capacitance	—	30	—	pF	V_{DS}=25V,V_{GS}=0V, f=1.0MHz
C_{oss}	Output capacitance	—	12	—		
C_{rss}	Reverse transfer capacitance	—	5	—		

Source-Drain Ratings and Characteristics

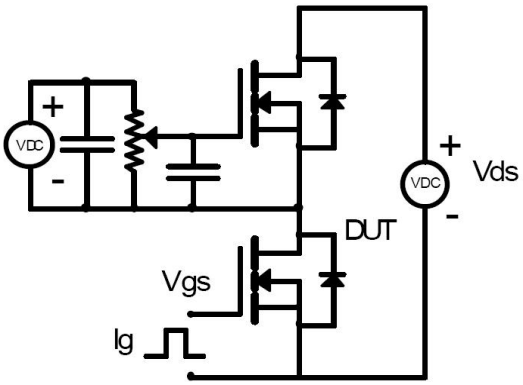
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode) ①	—	—	0.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	1.2	A	
V_{SD}	Diode Forward Voltage	—	—	1.2	V	I_S=0.3A, V_{GS}=0V,T_J= 25°C

Test Circuits and Waveforms:

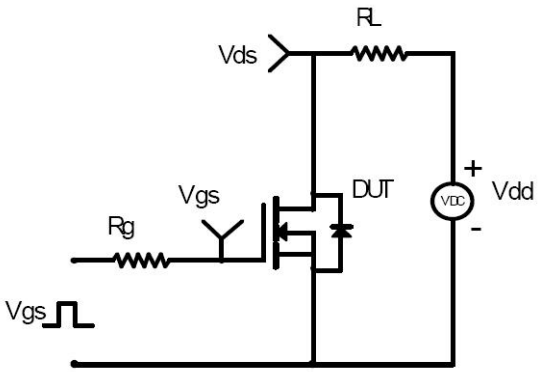
EAS Test Circuit:



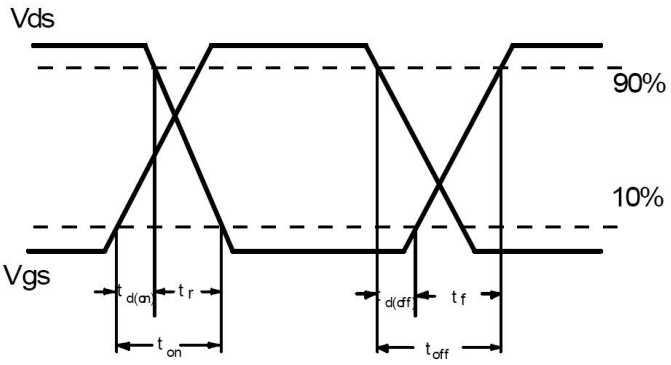
Gate Charge Test Circuit:



Switching Time Test Circuit:



Switching Waveforms:



Notes:

①Calculated continuous current based on maximum allowable junction temperature.

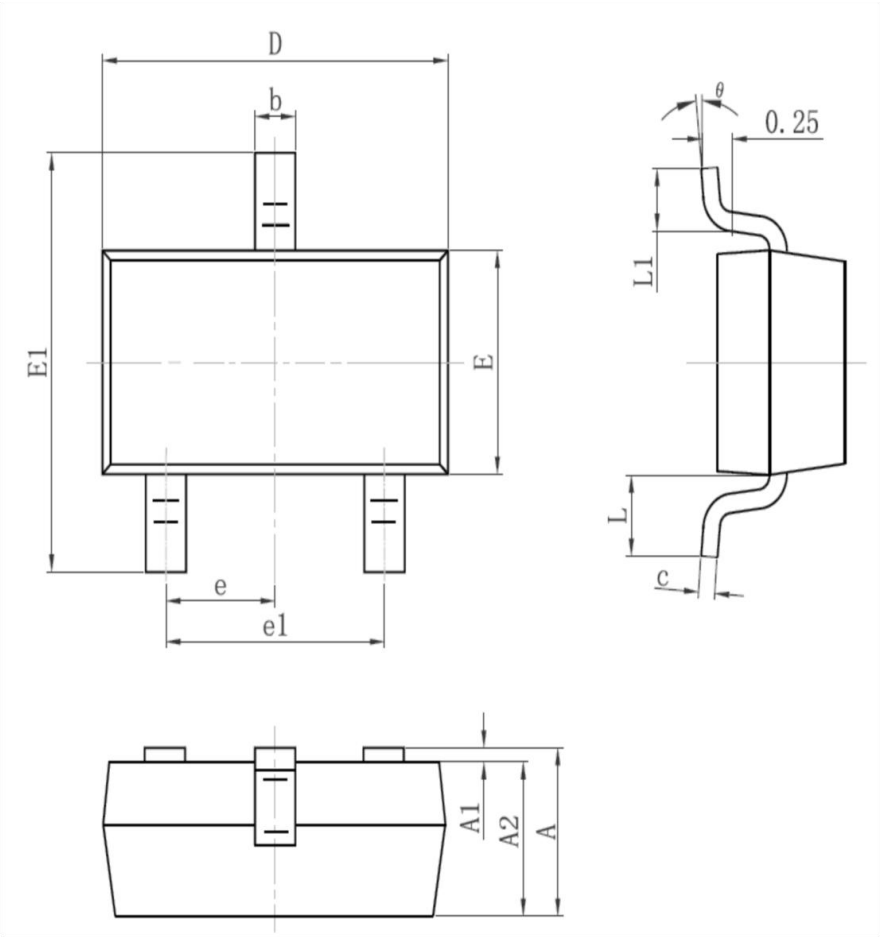
②Repetitive rating; pulse width limited by max. junction temperature.

③The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.

④The 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 ℃

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	0^0	8^0	0^0	8^0

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