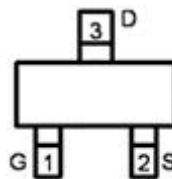
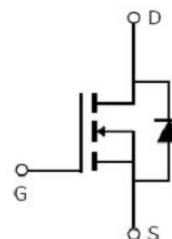


Main Product Characteristics:

V_{DSS}	100V
$R_{DS(on)}$	220m Ω (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
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	3	A
$I_D @ T_C = 100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	2	
I_{DM}	Pulsed Drain Current ②	12	
$P_D @ T_C = 25^\circ\text{C}$	Power Dissipation ③	2.3	W
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-to-Source Voltage	± 20	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ\text{C}$

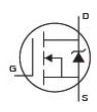
Thermal Resistance

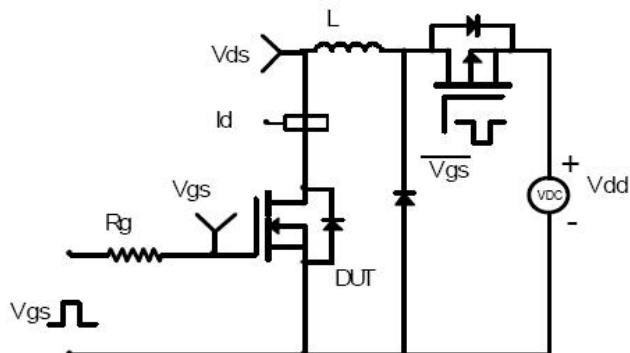
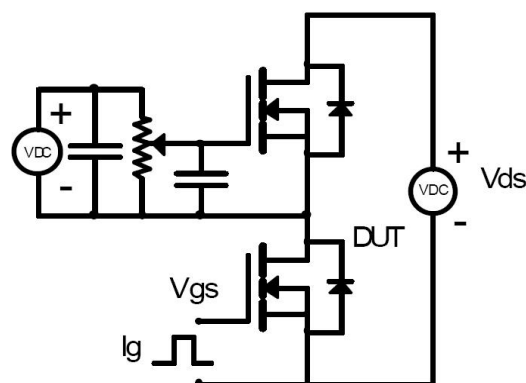
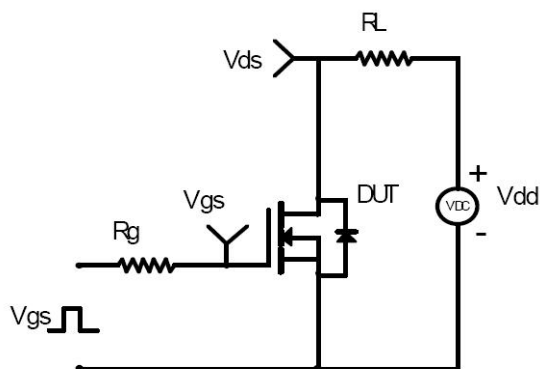
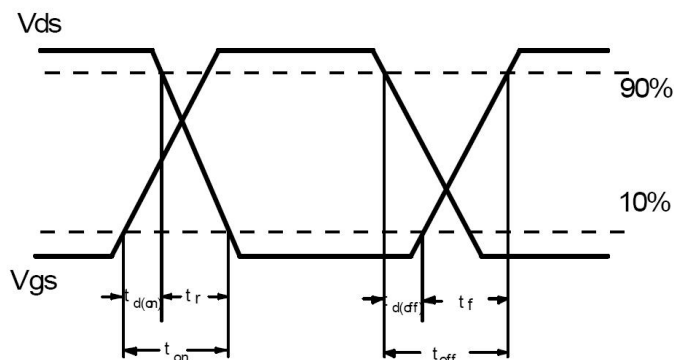
Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-Ambient (t ≤ 10s) ^④	—	54	°C/W

Electrical Characterizes @T_A=25°C unless otherwise specified

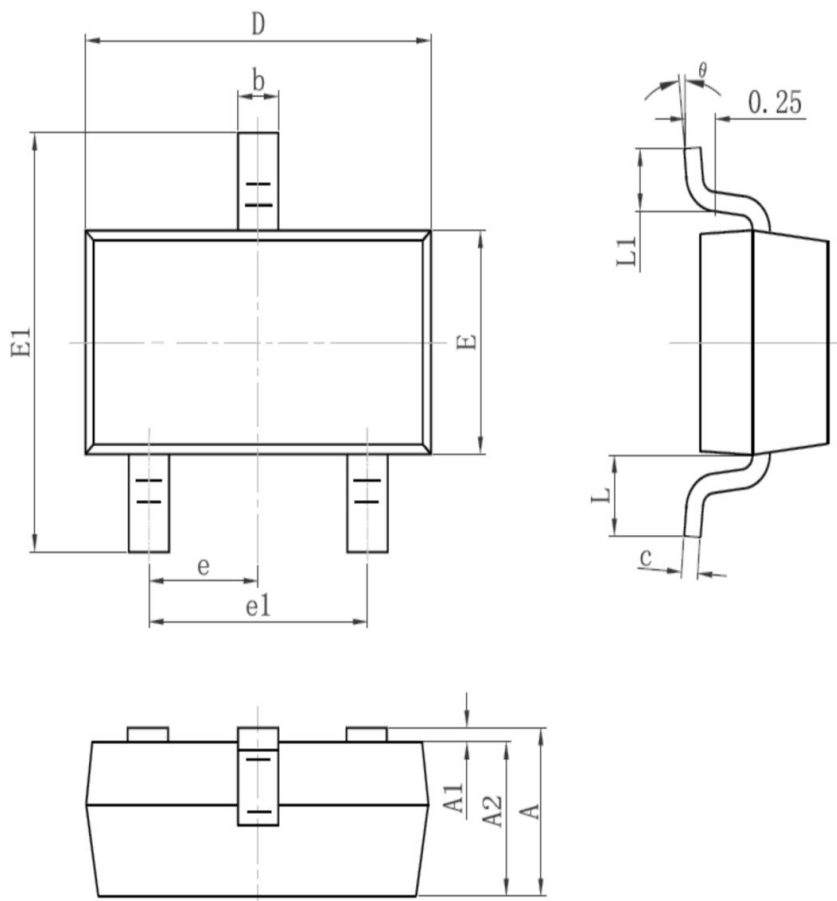
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	100	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	220	286	mΩ	V _{GS} =10V, I _D = 2A
		—	250	325		V _{GS} =4.5V, I _D = 1A
V _{GS(th)}	Gate threshold voltage	1	—	2.5	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} =100V, 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	—	5.4	—	nC	I _D = 2A
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	—	15	—	nS	V _{GS} =10V, V _{DS} =30V, R _{GEN} =3Ω I _D =1A
t _r	Rise time	—	55	—		
t _{d(off)}	Turn-Off delay time	—	19	—		
t _f	Fall time	—	12	—		
C _{iss}	Input capacitance	—	322	—	pF	V _{GS} = 0V
C _{oss}	Output capacitance	—	22	—		V _{DS} = 25V
C _{rss}	Reverse transfer capacitance	—	16	—		f =1MHz

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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