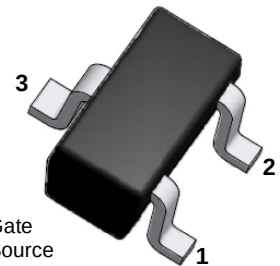


150mW SOT-523 SURFACE MOUNT

Plastic Package

N-Channel 1.8-V (G-S) MOSFET

Green Product



1. Gate
2. Source
3. Drain

SOT-523

Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	5 secs	Steady State	Units
V_{DS}	Drain-Source Voltage	20		V
V_{GS}	Gate-Source Voltage	$\pm 6V$		V
I_D	Continuous Drain Current ^e $T_A=25^\circ\text{C}$ $T_A=85^\circ\text{C}$	600 400	500 350	mA
I_{DM}	Pulsed Drain Current ^d	1000		mA
I_S	Continuous Source Current ^e	275	250	mA
P_D	Power Dissipation ^e $T_A=25^\circ\text{C}$ $T_A=85^\circ\text{C}$	175 90	150 80	mW
T_{STG}	Storage Temperature Range	-55 to +150		$^\circ\text{C}$
T_J	Operating Junction Temperature	+150		$^\circ\text{C}$
ESD	Gate-source ESD Rating (HBM, Method 3015)	2000		V

These ratings are limiting values above which the serviceability of the device may be impaired.

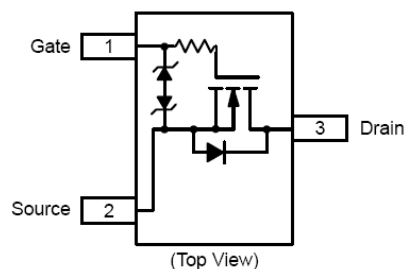
Notes:

- d. Pulse width limited by maximum junction temperature.
e. Surface mounted on FR4 board.

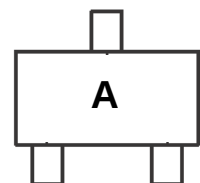
FEATURES

- | TrenchFET[®] Power MOSFET: 1.8-V Rated
- | Gate-Source ESD Protected: 2000V
- | High-side Switching
- | Low On-Resistance: 0.7 Ω
- | Low Threshold: 0.8V (Typ.)
- | Fast Switching Speed: 10ns
- | S-Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- | RoHS Compliant
- | Green EMC
- | Matte Tin(Sn) Lead Finish
- | Weight: approx. 0.002g

Electrical Symbol:



Device Marking Code:



BENEFITS

- | Ease in Driving Switches
- | Low Offset(Error) Voltage
- | Low-Voltage operation
- | High-Speed Circuits
- | Low Battery Voltage Operation

APPLICATIONS

- | Drivers: Relays, Solenoids, Lamps, Hammers, displays, Memories
- | Battery Operated Systems
- | Power Supply Converter Circuits
- | Load/Power Switching Cell Phones, agers

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Static

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
V _{th(GS)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D =250uA	0.45		0.9	Volts
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} = ±4.5V		±0.5	±1.0	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V		0.3	100	nA
I _{D(ON)}	On-state Drain Current ^a	V _{DS} =5V, V _{GS} =4.5V	700			mA
R _{DS(on)}	Drain-Source On-Resistance ^a	V _{GS} =4.5V, I _D =600mA		0.41	0.70	Ω
		V _{GS} =2.5V, I _D =500mA		0.53	0.85	
		V _{GS} =1.8V, I _D =350mA		0.70	1.25	
g _{fs}	Forward Trans Conductance ^a	V _{DS} =10V, I _D =400mA		1		s
V _{SD}	Diode Forward Voltage ^a	I _S =150mA, V _{GS} =0V		0.8	1.2	V

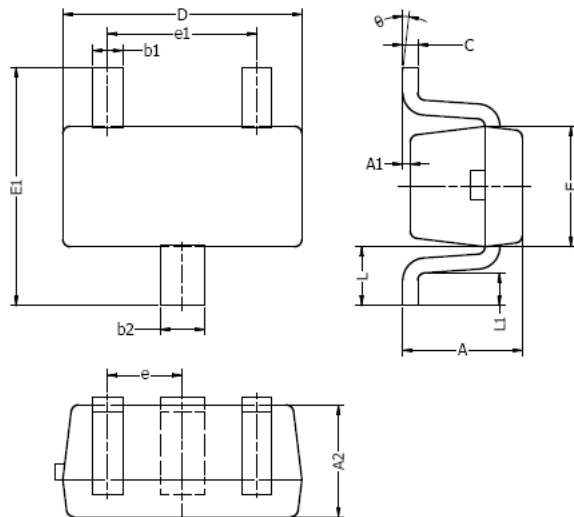
Dynamic ^b

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
Q _g	Total Gate Charge	V _{DS} =10V, V _{GS} =4.5V, I _D =250mA	--	750	--	pC
Q _{gs}	Gate-Source Charge		--	75	--	
Q _{gd}	Gate-Drain Charge		--	225	--	
T _{d(on)}	Turn-On Delay Time	V _{DD} =10V, R _L =47Ω, I _D =200mA, V _{GEN} =4.5V R _G =10Ω	--	5	--	ns
t _r	Rise Time		--	5	--	
t _{d(off)}	Turn-Off Delay Time		--	25	--	
t _f	Fall Time		--	11	--	

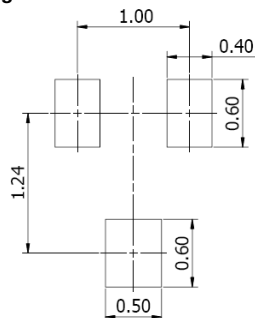
Notes:

- Pulse test: pulse width≤300us, duty cycle ≤2%.
- Guaranteed by design, not subject to production testing.

SOT-523 Package Outline



Typical Soldering Pattern:



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°

NOTES:

1. Above package outline conforms to JEITA EAIJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.