

Features

- $V_{DS} = 20V, I_D = 0.8A$
 $R_{DS(ON)} = 250m\Omega @ V_{GS}=4.5V$ (typ)
 $R_{DS(ON)} = 300m\Omega @ V_{GS}=2.5V$ (typ)
- ESD Protection

Application

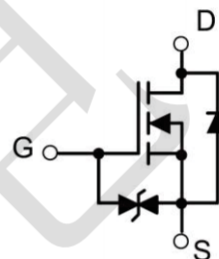
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Package and Pin Configuration



SOT-523

Circuit diagram



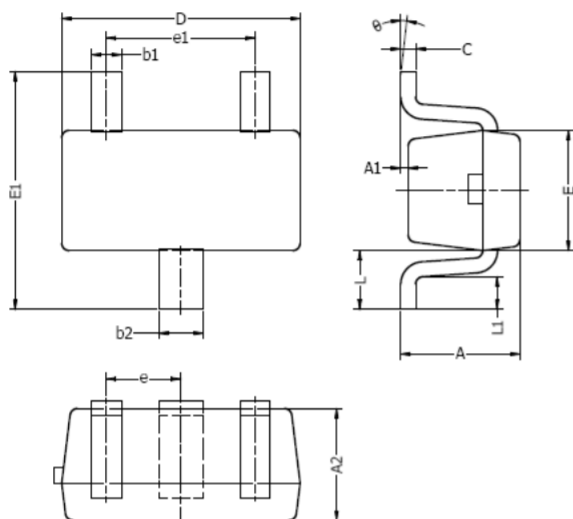
Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	0.8	A
Pulsed Drain Current ($t=300\mu s$) ⁽¹⁾	I_{DM}	1.8	A
Power Dissipation ⁽²⁾	P_D	280	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	452	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{STG}	-55~ +150	$^\circ C$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

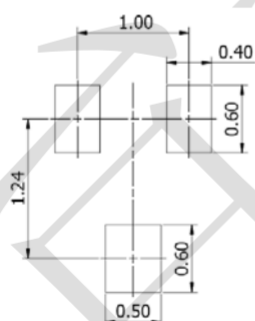
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage ⁽³⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.75	1.1	V
Drain-source on-resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 550mA$		250	400	mΩ
		$V_{GS} = 2.5V, I_D = 450mA$		300	500	
Forward tranconductance	g_{FS}	$V_{DS} = 5V, I_D = 500mA$		1.7		S
Dynamic characteristics ⁽⁴⁾						
Input Capacitance	C_{iss}	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$			120	pF
Output Capacitance	C_{oss}				20	
Reverse Transfer Capacitance	C_{rss}				15	
Switching Characteristics ⁽⁴⁾						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, I_D = 500mA,$ $V_{GS} = 4.5V, R_G = 10\Omega$		6.7		ns
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			17.3		
Turn-off fall time	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V_{DS}	$I_S = 0.15A, V_{GS} = 0V$			1.2	V

SOT523 Package Outline Drawing



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°

Suggested Land Pattern



NOTES:

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