

**Features**

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

**Application**

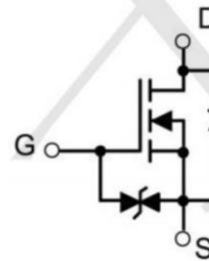
- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

**Package and Pin Configuration**



SOT-523

**Circuit diagram**



Marking:A

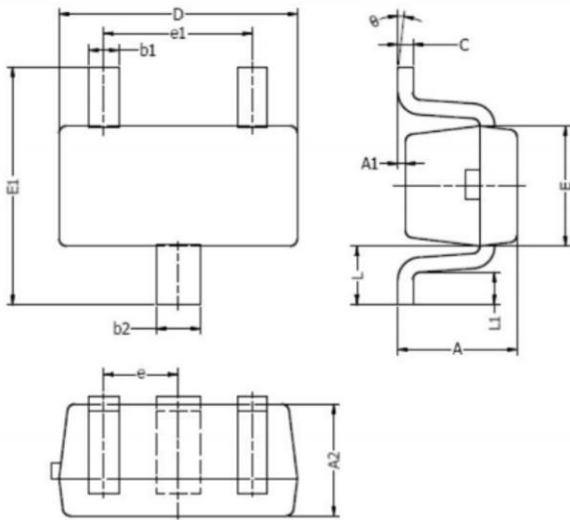
**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$I_D$	0.8	A
Pulsed Drain Current ( $t=300\mu s$ ) <sup>(1)</sup>	$I_{DM}$	1.8	A
Power Dissipation <sup>(2)</sup>	$P_D$	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 )**

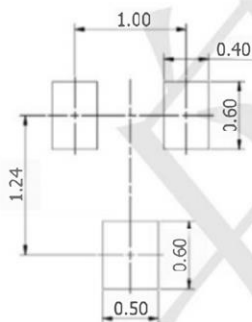
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 8V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Gate threshold voltage <sup>(3)</sup>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.75	1.1	V
Drain-source on-resistance <sup>(3)</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 550mA$		180	250	m $\Omega$
		$V_{GS} = 2.5V, I_D = 450mA$		230	300	
Forward transconductance	$g_{FS}$	$V_{DS} = 5V, I_D = 500mA$		1.7		S
<b>Dynamic characteristics<sup>(4)</sup></b>						
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	
<b>Switching Characteristics<sup>(4)</sup></b>						
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		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(3)</sup>	$V_{DS}$	$I_S = 0.15A, V_{GS} = 0V$			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 EAI ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.