Features

- V_{DS} = -20V, I_D = -0.55A

  $R_{DS(ON)}$ < 590mΩ @ V_{GS}=-4.5V

  $R_{DS(ON)}$ < 900mΩ @ 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

Marking: B Or 39K

Circuit diagram
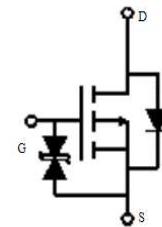
Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	-0.55	A
Pulsed Drain Current (t=300μs) [1]	I_{DM}	-1.4	A
Power Dissipation [2]	P_D	280	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	452	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

1

Electrical Characteristics (T_A = 25°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 = -250µA	-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} = ±10V, V_{DS} = 0V			±10	µA
Gate threshold voltage[3]	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250µA	-0.5	-0.75	-1.1	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS}=-4.5V, I_{DS}=-550mA			590	mΩ
		V_{GS}=-2.5V, I_{DS}=-450mA			900	
Forward tranconductance	g_{FS}	V_{DS} =-5V, I_D =500mA		1		S
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-10V, Freq.=1MHz			60	pF
Output Capacitance	C_{oss}				6	
Reverse Transfer Capacitance	C_{rss}				5	
Switching Characteristics[4]						
Turn-on delay time	$t_{d(on)}$	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-1A, R_{GEN}=3Ω		0.45		us
Turn-on rise time	t_r			0.04		
Turn-off delay time	$t_{d(off)}$			0.035		
Turn-off fall time	t_f			1.1		
Source-Drain Diode characteristics						
Diode Forward voltage[3]	V_{DS}	I_S=0.15A, V_{GS} = 0V			-1.2	V

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SOT523 Package Outline Drawing
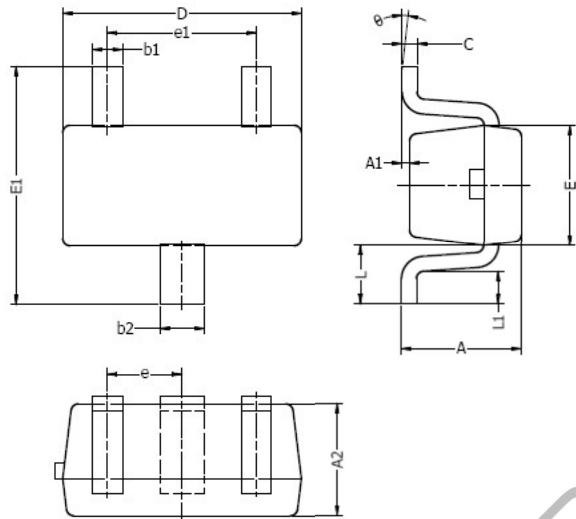
Suggested Land Pattern
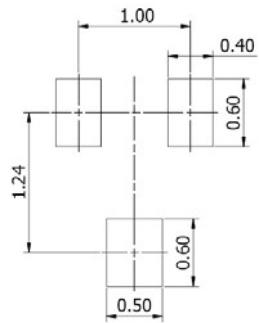
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0^0	8^0	0^0	8^0

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