

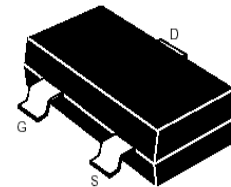
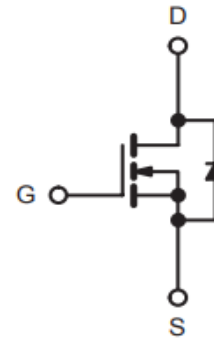
»Features

$V_{DS} = 20V$
 $I_D = 2.1A$
 $R_{DS(ON)} @V_{GS} = 4.5V, \text{ Max} = 68m\Omega$
 $R_{DS(ON)} @V_{GS} = 2.5V, \text{ Max} = 115m\Omega$

»General Description

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- SOT-323 for Surface Mount Package.

»Pin Configurations



»Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	20	V
Gate-Source Voltage	VGS	±8	
Continuous Drain Current	I_D	2.1	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	0.2	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R\theta_{JA}$	625	°C/W
Operating Junction	T_J	150	°C
Storage Temperature	TSTG	-55 ~ +150	

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

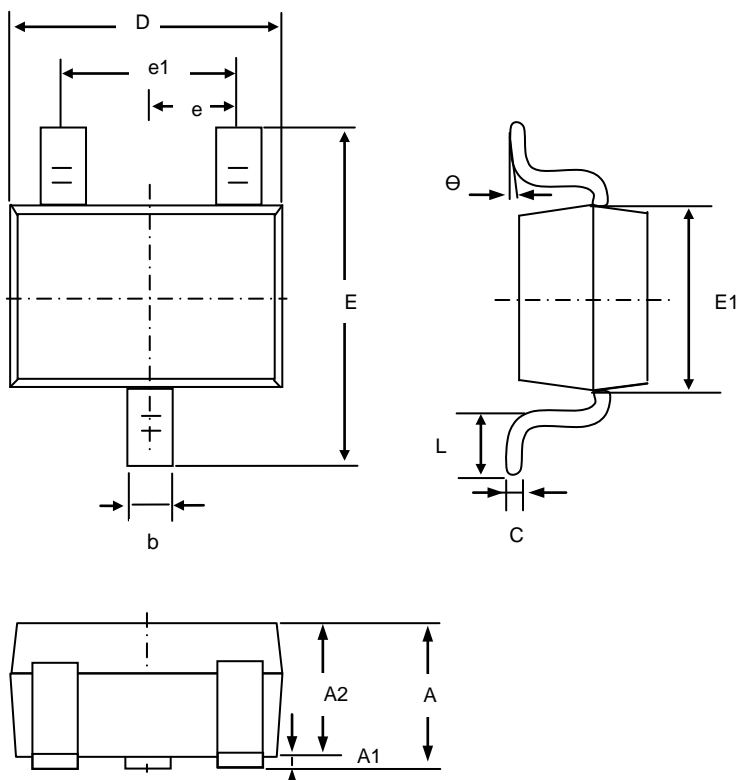
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V(\text{BR})_{\text{DSS}}$	$V_{\text{GS}} = 0\text{V}, I_{\text{D}} = 10\mu\text{A}$	20			V
Gate-threshold voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}, I_{\text{D}} = 50\mu\text{A}$	0.65	0.95	1.2	
Gate-body leakage	I_{GSS}	$V_{\text{DS}} = 0\text{V}, V_{\text{GS}} = \pm 8\text{V}$			± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{\text{DS}} = 20\text{V}, V_{\text{GS}} = 0\text{V}$			1	μA
Drain-source on-resistance ¹	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}} = 4.5\text{V}, I_{\text{D}} = 3.6\text{A}$		0.059	0.068	Ω
		$V_{\text{GS}} = 2.5\text{V}, I_{\text{D}} = 3.1\text{A}$		0.070	0.115	
Forward transconductance ¹	g_{fs}	$V_{\text{DS}} = 5\text{V}, I_{\text{D}} = 3.6\text{A}$		8		S
Diode forward voltage	V_{SD}	$I_{\text{S}} = 0.94\text{A}, V_{\text{GS}} = 0\text{V}$		0.76	1.2	V
Dynamic Characteristics						
Total gate charge	Q_{g}	$V_{\text{DS}} = 10\text{V}, V_{\text{GS}} = 4.5\text{V}, I_{\text{D}} = 3.6\text{A}$		4.0	10	nC
Gate-source charge	Q_{gs}			0.65		
Gate-drain charge	Q_{gd}			1.5		
Input capacitance ²	C_{iss}	$V_{\text{DS}} = 10\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$		300		pF
Output capacitance ²	C_{oss}			120		
Reverse transfer capacitance ²	C_{rss}			80		
Switching Characteristics²						
Turn-on delay time	$t_{\text{d}(\text{on})}$	$V_{\text{DD}} = 10\text{V}, R_{\text{L}} = 5.5\Omega,$ $I_{\text{D}} \approx 3.6\text{A}, V_{\text{GEN}} = 4.5\text{V}, R_{\text{g}} = 6\Omega$		7	15	ns
Rise time	t_{r}			55	80	
Turn-off delay time	$t_{\text{d}(\text{off})}$			16	60	
Fall time	t_{f}			10	25	

Notes :

- Pulse Test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- These parameters have no way to verify.

»Package Information

SOT-323



Symbol	Dim in mm		
	Min	Nor	Max
A	0.90	1.00	1.10
A1	0.00	0.05	0.10
A2	0.90	0.95	1.00
b	0.20	0.30	0.40
c	0.08	0.12	0.15
D	2.00	2.10	2.20
E	2.15	2.30	2.45
E1	1.15	1.25	1.35
e	0.650TPY.		
e1	1.2	1.3	1.4
L	0.26	0.36	0.46
θ	0°	4°	8°

»Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BMS2302	SOT-323	TS2	3K	Tape and reel