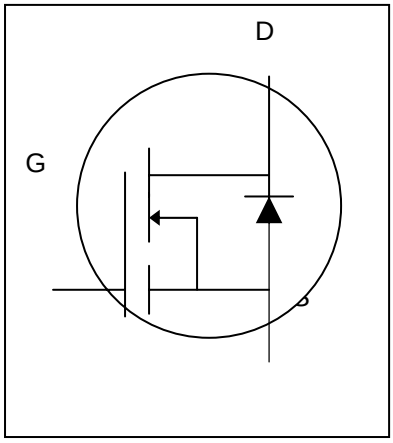
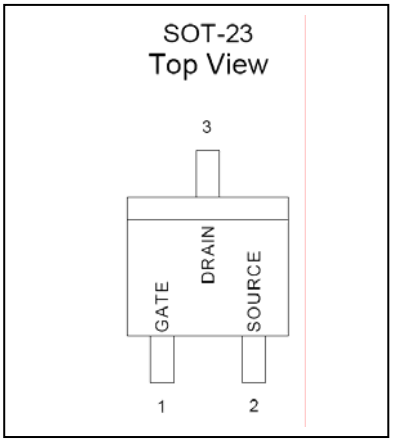
- Advanced Process Technology
- Ultra low On-Resistance Provides Higher Efficiency
- Avalanche Energy Specified
- Source-to-Drain Diode Recovery Time Comparable to a Discrete Fast Recovery Diode
- Diode is Characterized for Use in Bridge Circuits
- IDSS and VDS (on) Specified at Elevated Temperature

DESCRIPTION



V_{DSS} = 60V

I_D = ±115m A



ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain Source Voltage	V_{DSS}	60	V
Drain-Gate Voltage(R_{GS}=1.0MΩ)	V_{DGR}	60	V
Drain to Current – Continuous – Pulsed	I_D I_{DM}	±115 ±800	mA mA
Gate-to-Source Voltage – Continue – Non-repetitive	V_{GS} V_{GSM}	± 20 ± 40	V V
Total Power Dissipation Derate above 25 ℃	P_D	225 1.8	mW mW/℃
Single Pulse Drain-to-Source Avalanche Energy – T_J= 25 ℃ (V_{DD} = 50V, V_{GS}= 10V, I_{AS} =0.8A, L = 30mH, R_G=25Ω)	E_{AS}	9.6	mJ
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	℃
Thermal Resistance – Junction to Ambient	θ_{JA}	417	℃/W
Maximum Lead Temperature for Soldering Purpose, 1/8" from case for 10 seconds	T_L	300	℃

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ELECTRICAL CHARACTERISTICS

Unless otherwise specified, T_J = 25℃.

Characteristic		Symbol	B02N7002 Min	Typ	Max	Units
Drain-Source Breakdown Voltage (V_{GS} = 0 V, I_D = 10 μA)		$V_{(BR)DSS}$	60			V
Drain-Source Leakage Current		I_{DSS}				
(V_{DS} = 60 V, V_{GS} = 0 V)					1.0	μA
(V_{DS} = 60 V, V_{GS} = 0 V, T_J = 125℃)					0.5	mA
Gate-Source Leakage Current-Forward (V_{gsf} = 20 V)		I_{GSSF}			100	nA
Gate-Source Leakage Current-Reverse (V_{gsf} = -20 V)		I_{GSSF}			-100	nA
Gate Threshold Voltage * (V_{DS} = V_{GS}, I_D = 250 μA)		$V_{GS(th)}$	1.0		2.5	V
On-State Drain Current (V_{DS} ≧ 2.0 $V_{DS(on)}$, V_{GS} = 10V)		$I_{d(on)}$	500			mA
Static Drain-Source On-Resistance *		$R_{DS(on)}$				Ω
(V_{GS} = 10 V, I_D = 0.5A)					7.5	
(V_{GS} = 10 V, I_D = 0.5A, T_C = 125℃)					13.5	
(V_{GS} = 5.0 V, I_D = 50mA)					7.5	
(V_{GS} = 5.0 V, I_D = 50mA, T_C = 125℃)					13.5	
Drain-Source On-Voltage *		$V_{DS(on)}$				V
(V_{GS} = 10 V, I_D = 0.5A)					3.75	
(V_{GS} = 5.0 V, I_D = 50mA)					0.375	
Forward Transconductance (V_{DS} ≧ 2.0 $V_{DS(on)}$, I_D = 200mA) *		g_{FS}	80			mmhos
Input Capacitance	(V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz)	C_{lss}			50	pF
Output Capacitance		C_{oss}			25	pF
Reverse Transfer Capacitance		C_{rss}			5.0	pF
Turn-On Delay Time	(V_{DD} = 25 V, I_D = 500 mA, V_{gen} = 10 V, R_G = 25Ω, R_L = 50Ω) *	$t_{d(on)}$			20	ns
Turn-Off Delay Time		$t_{d(off)}$			40	ns
Diode Forward On-Voltage (IS = 115 mA, VGS = 0V)		V_{SD}			-1.5	V
Source Current Continuous (Body Diode)		I_S			-115	mA
Source Current Pulsed		I_{SM}			-800	mA

* Pulse Test: Pulse Width ≦300μs, Duty Cycle ≦2%

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TYPICAL ELECTRICAL CHARACTERISTICS

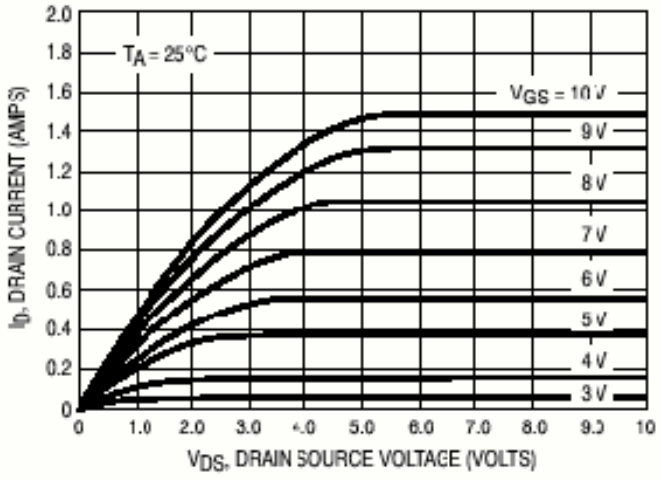

Figure 1. Ohmic Region

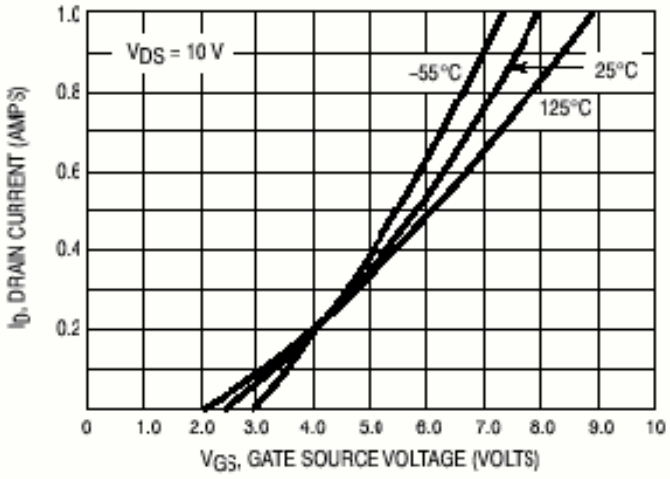

Figure 2. Transfer Characteristics

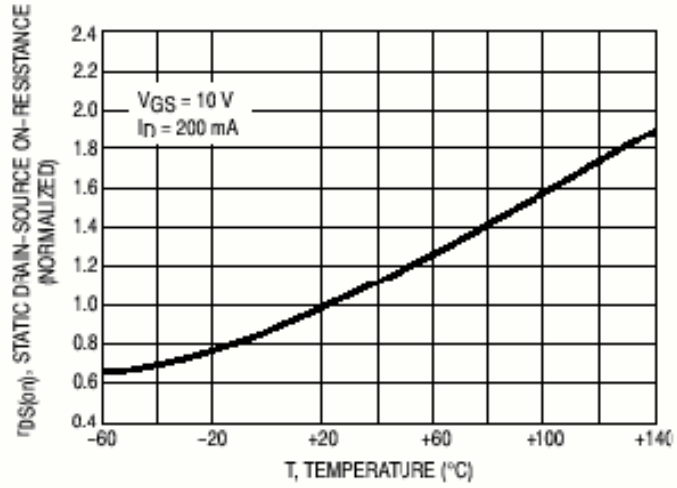

Figure 3. Temperature versus Static Drain–Source On–Resistance

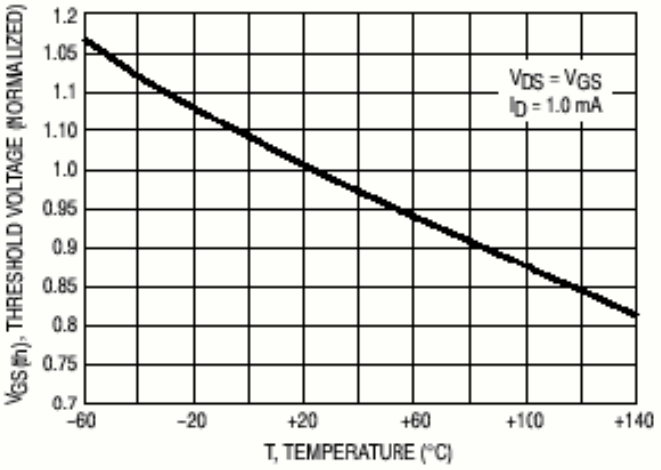

Figure 4. Temperature versus Gate Threshold Voltage

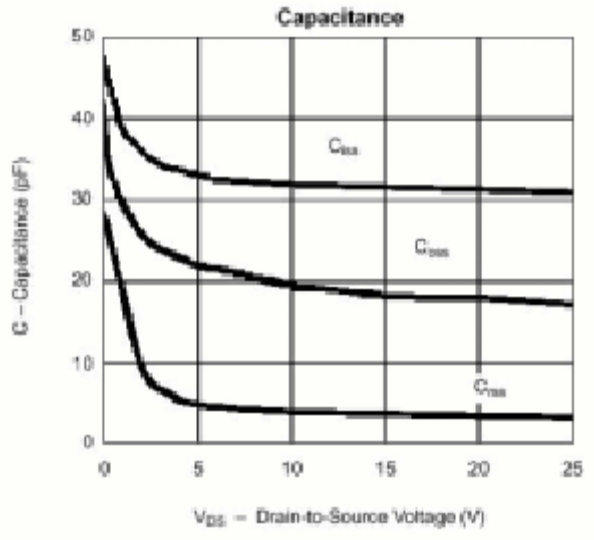

Figure 5:Capacitance

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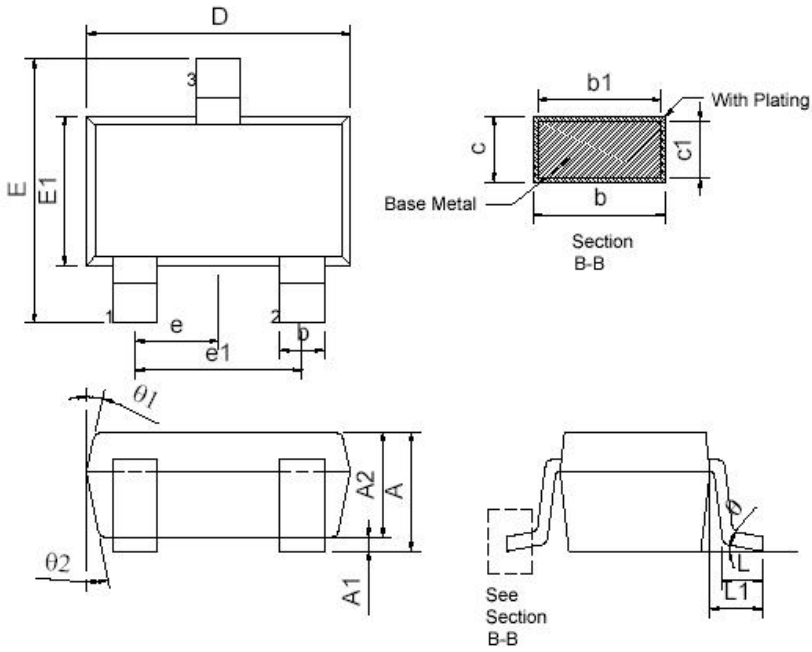
PACKAGE DIMENSION

SOT-23



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.05	---	1.35	0.041	---	0.053
A1	0.05	---	0.15	0.002	---	0.006
A2	1.00	1.10	1.20	0.039	0.043	0.047
b	0.36	---	0.50	0.010	---	0.020
b1	0.25	0.40	0.45	0.010	0.016	0.018
c	0.08	---	0.20	0.003	---	0.008
c1	0.08	0.11	0.15	0.003	0.004	0.006
D	2.70	2.90	3.00	0.106	0.114	0.118
E	2.20	2.40	2.60	0.087	0.094	0.102
E1	1.20	1.30	1.40	0.047	0.051	0.055
L	0.35	0.45	0.55	0.014	0.018	0.022
L1	0.60 REF			0.024 REF		
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
θ	0°	5°	10°	0°	5°	10°
θ1	3°	5°	7°	3°	5°	7°
θ2	6°	8°	10°	6°	8°	10°

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