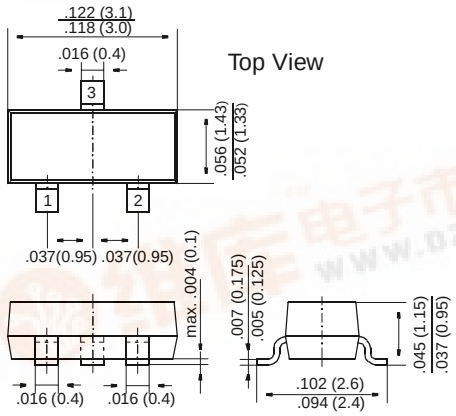
BS809

DMOS Transistors (N-Channel)

SOT-23



Dimensions in inches and (millimeters)

Pin configuration
1 = Gate, 2 = Source, 3 = Drain

FEATURES

- High input impedance
- Low gate threshold voltage
- Low drain-source ON resistance
- High-speed switching
- No minority carrier storage time
- CMOS logic compatible input
- No thermal runaway
- No secondary breakdown

MECHANICAL DATA

Case: SOT-23 Plastic Package
Weight: approx. 0.008 g
Marking
S09

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	400	V
Drain-Gate Voltage	V_{DGS}	400	V
Gate-Source Voltage (pulsed)	V_{GS}	±20	V
Drain Current (continuous) at T_{SB} = 50 °C	I_D	100	mA
Power Dissipation at T_{SB} = 50 °C	P_{tot}	310[1)]	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–65 to +150	°C
[1)] Device on fiberglass substrate, see layout			

Inverse Diode

	Symbol	Value	Unit
Max. Forward Current (continuous) at T_{amb} = 25 °C	I_F	300	mA
Forward Voltage Drop (typ.)at V_{GS} = 0, I_F = 0.3 A, T_j = 25 °C	V_F	1.0	V

GENERAL SEMICONDUCTOR®

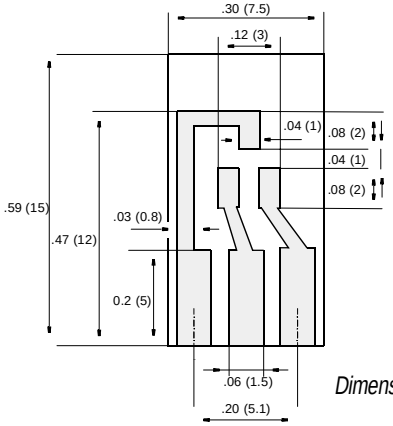
BS809

ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified

	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at I_D = 100 µA, V_{GS} = 0 V	$V_{(BR)DSS}$	400	430	–	V
Gate-Body Leakage Current, Forward at V_{GSF} = 20 V, V_{DS} = 0 V	I_{GSSF}	–	–	100	nA
Gate-Body Leakage Current, Reverse at V_{GSR} = 20 V, V_{DS} = 0 V	I_{GSSR}	–	–	100	nA
Drain Cutoff Current at V_{DS} = 400 V, V_{GS} = 0 V	I_{DSS}	–	–	500	nA
Gate-Source Threshold Voltage at V_{GS} = V_{DS}, I_D = 250 µA	$V_{GS(th)}$	1	1.5	2.5	V
Drain-Source ON Resistance at V_{GS} = 5 V, I_D = 100 mA	$R_{DS(on)}$	–	18	22	Ω
Capacitances at V_{DS} = 25 V, V_{GS} = 0 V, f = 1 MHz Input Capacitance Output Capacitance Feedback Capacitance	 C_{iSS} C_{OSS} C_{rS}	 – – –	 80 20 10	 – – –	 pF pF pF
Switching Times at V_{GS} = 10 V, V_{DS} = 10 V, R_D = 100 Ω Turn-On Time Turn-Off Time	 t_{on} t_{off}	 – –	 10 50	 – –	 ns ns
Thermal Resistance Junction to Substrate Backside	R_{thSB}			320[1)]	
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	450[1)]	K/W

[1)] Device on fiberglass substrate, see layout



Layout for R_{thJA} test
Thickness: Fiberglass 0.059 in (1.5 mm)
Copper leads 0.012 in (0.3 mm)

Dimensions in inches (millimeters)