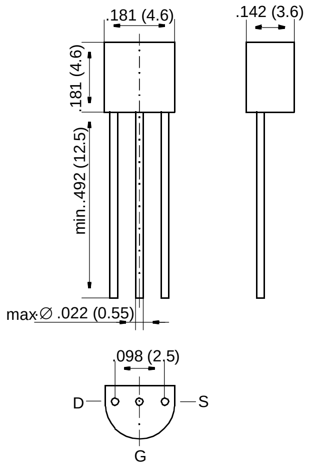
BS109

DMOS Transistors (N-Channel)

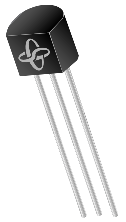
TO-92



Dimensions in inches and (millimeters)

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: TO-92 Plastic Package
Weight: approx. 0.18 g

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_{amb} = 25 °C	I_D	120	mA
Power Dissipation at T_{amb} = 25 °C	P_{tot}	830¹⁾	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–65 to +150	°C
1) Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.			

Inverse Diode

	Symbol	Value	Unit
Max. Forward Current (continuous) at T_{amb} = 25 °C	I_F	400	mA
Forward Voltage Drop (typ.) at V_{GS} = 0 V, I_F = 400 mA, T_j = 25 °C	V_F	1.0	V

GENERAL
SEMICONDUCTOR®

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} = 10 V, I_D = 120 mA	$R_{DS(on)}$	–	16	22	Ω
Capacitance at V_{DS} = 25 V, V_{GS} = 0, f = 1 MHz					
Input Capacitance	C_{iSS}	–	80	–	pF
Output Capacitance	C_{OSS}	–	20	–	pF
Feedback Capacitance	C_{rSS}	–	10	–	pF
Switching Times at V_{GS} = 10 V, V_{DS} = 10 V, R_D = 100 Ω					
Turn-On Time	t_{on}	–	10	–	ns
Turn-Off Time	t_{off}	–	50	–	ns
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	150[1)]	K/W

[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case.