BS108

Preferred Device

Small Signal MOSFET 250 mAmps, 200 Volts, Logic Level

N–Channel TO–92

This MOSFET is designed for high voltage, high speed switching applications such as line drivers, relay drivers, CMOS logic, microprocessor or TTL to high voltage interface and high voltage display drivers.

- Low Drive Requirement, V_{GS} = 3.0 V max
- Inherent Current Sharing Capability Permits Easy Paralleling of many Devices

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	200	Vdc
Gate–Source Voltage	V_{GS}	±20	Vdc
Drain Current Continuous (Note 1.) Pulsed (Note 2.)	 I_D I_{DM}	 250 500	mAdc
Total Power Dissipation @ T_A = 25°C Derate above T_A = 25°C	P_D	 350 6.4	 mW mW/°C
Operating and Storage Temperature Range	T_J, T_{stg}	–55 to +150	°C

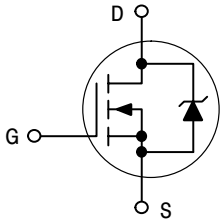
1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

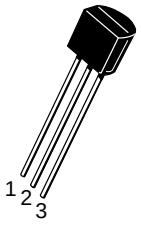
ON Semiconductor

http://onsemi.com

250 mAMPS
200 VOLTS
$R_{DS(on)}$ = 8 Ω

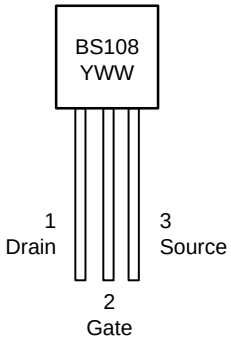
N–Channel





TO–92
CASE 29
Style 30

MARKING DIAGRAM & PIN ASSIGNMENT



Y = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping
BS108	TO–92	1000 Units/Box
BS108ZL1	TO–92	2000 Ammo Pack

Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Drain–Source Breakdown Voltage (V_{GS} = 0, I_D = 10 μA)	$V_{(BR)DSS}$	200	–	–	Vdc
Zero Gate Voltage Drain Current (V_{DSS} = 130 Vdc, V_{GS} = 0)	I_{DSS}	–	–	30	nAdc
Gate–Body Leakage Current (V_{GS} = 15 Vdc, V_{DS} = 0)	I_{GSSF}	–	–	10	nAdc
ON CHARACTERISTICS (2)					
Gate Threshold Voltage (I_D = 1.0 mA, V_{DS} = V_{GS})	$V_{GS(th)}$	0.5	–	1.5	Vdc
Static Drain–to–Source On–Resistance (V_{GS} = 2.0 Vdc, I_D = 50 mA) (V_{GS} = 2.8 Vdc, I_D = 100 mA)	$r_{DS(on)}$	– –	– –	10 8.0	Ohms
Drain Cutoff Current (V_{GS} = 0.2 V, V_{DS} = 70 V)	I_{DSX}	–	–	25	μA
DYNAMIC CHARACTERISTICS					
Input Capacitance (V_{DS} = 25 V, V_{GS} = 0, f = 1.0 MHz)	C_{iss}	–	–	150	pF
Output Capacitance (V_{DS} = 25 V, V_{GS} = 0, f = 1.0 MHz)	C_{oss}	–	–	30	pF
Reverse Transfer Capacitance (V_{DS} = 25 V, V_{GS} = 0, f = 1.0 MHz)	C_{rss}	–	–	10	pF
SWITCHING CHARACTERISTICS					
Turn–On Time (See Figure 1)	$t_{d(on)}$	–	–	15	ns
Turn–Off Time (See Figure 1)	$t_{d(off)}$	–	–	15	ns

2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle = 2.0%.

RESISTIVE SWITCHING

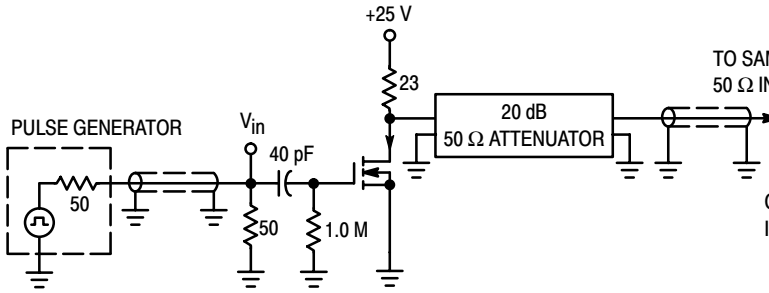


Figure 1. Switching Test Circuit

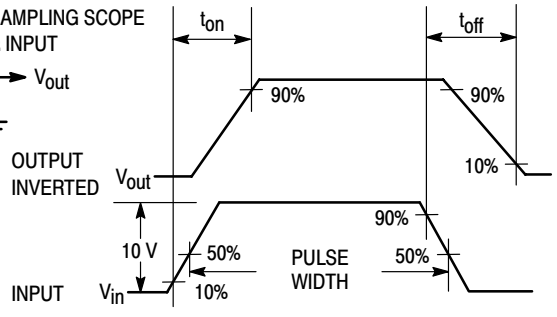


Figure 2. Switching Waveforms

PACKAGE DIMENSIONS

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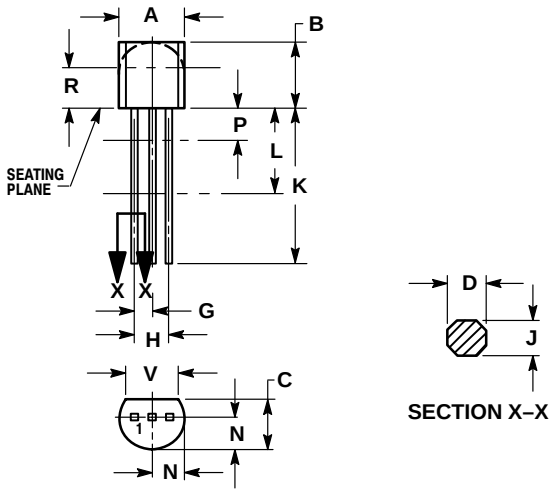
ISSUE AL



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 30:
PIN 1. DRAIN
2. GATE
3. SOURCE

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