

# BS107, BS107A

Preferred Device

## Small Signal MOSFET 250 mAmps, 200 Volts N-Channel TO-92

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	200	Vdc
Gate-Source Voltage – Continuous – Non-repetitive ( $t_p \leq 50 \mu s$ )	V <sub>GS</sub> V <sub>GSM</sub>	±20 ±30	Vdc Vpk
Drain Current Continuous (Note 1.) Pulsed (Note 2.)	I <sub>D</sub> I <sub>DM</sub>	250 500	mAdc
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	350	mW
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$ .

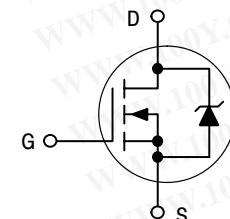


ON Semiconductor

250 mAmps  
200 Volts

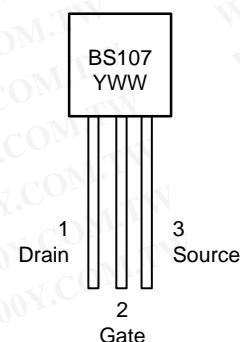
R<sub>DS(on)</sub> = 14 Ω (BS107)  
R<sub>DS(on)</sub> = 6.4 Ω (BS107A)

N-Channel



TO-92  
CASE 29  
Style 30

### MARKING DIAGRAM & PIN ASSIGNMENT



Y = Year  
WW = Work Week

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

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

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**ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted)**

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Zero-Gate-Voltage Drain Current (VDS = 130 Vdc, VGS = 0)	Idss	—	—	30	nAdc
Drain-Source Breakdown Voltage (VGS = 0, ID = 100 μAdc)	V(BR)DSX	200	—	—	Vdc
Gate Reverse Current (VGS = 15 Vdc, VDS = 0)	IGSS	—	0.01	10	nAdc

**ON CHARACTERISTICS (Note 2.)**

Gate Threshold Voltage (ID = 1.0 mAdc, VDS = VGS)	VGS(Th)	1.0	—	3.0	Vdc
Static Drain-Source On Resistance BS107 (VGS = 2.6 Vdc, ID = 20 mAdc) (VGS = 10 Vdc, ID = 200 mAdc)	rDS(on)	—	—	28	Ohms
BS107A (VGS = 10 Vdc) (ID = 100 mAdc) (ID = 250 mAdc)		—	—	14	
		—	4.5	6.0	
		—	4.8	6.4	

**SMALL-SIGNAL CHARACTERISTICS**

Input Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Ciss	—	60	—	pF
Reverse Transfer Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Crss	—	6.0	—	pF
Output Capacitance (VDS = 25 Vdc, VGS = 0, f = 1.0 MHz)	Coss	—	30	—	pF
Forward Transconductance (VDS = 25 Vdc, ID = 250 mAdc)	gfs	200	400	—	mmhos

**SWITCHING CHARACTERISTICS**

Turn-On Time	t <sub>on</sub>	—	6.0	15	ns
Turn-Off Time	t <sub>off</sub>	—	12	15	ns

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

勝特力材料 886-3-5753170

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## RESISTIVE SWITCHING

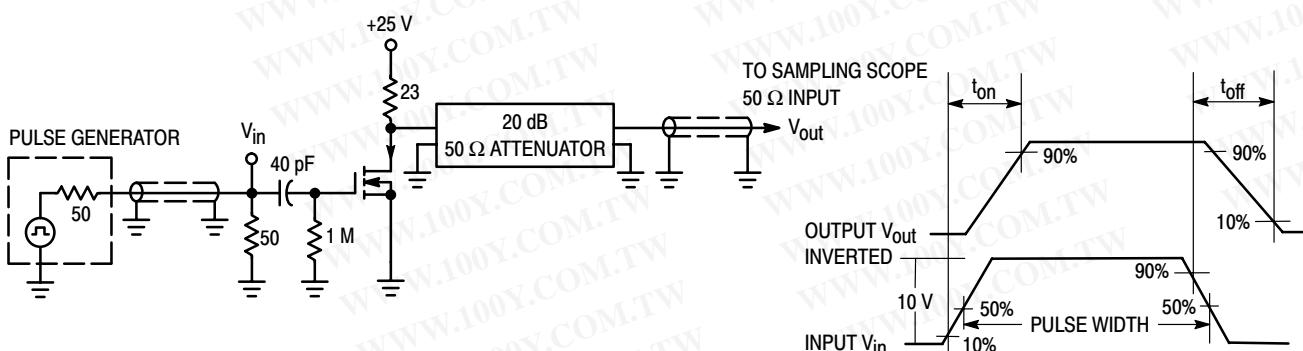
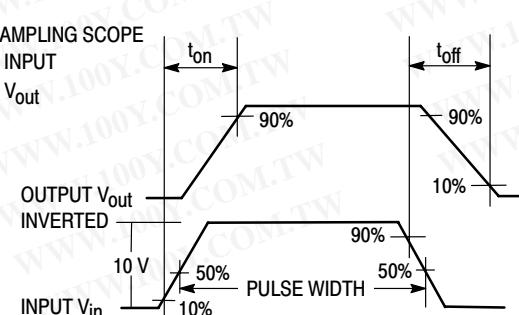


Figure 1. Switching Test Circuit

Figure 2. Switching Waveforms



# BS107, BS107A

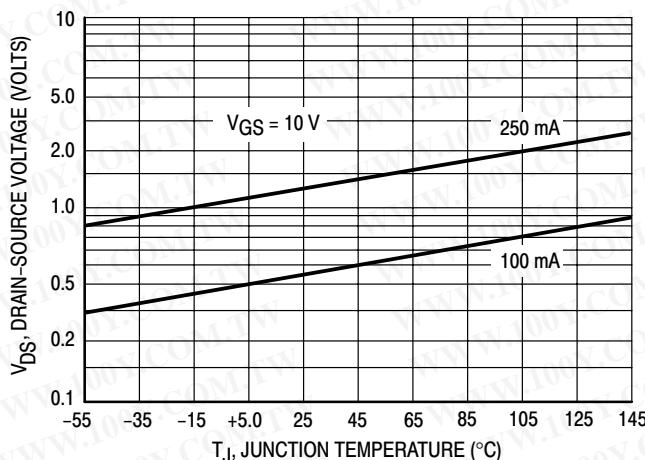


Figure 3. On Voltage versus Temperature

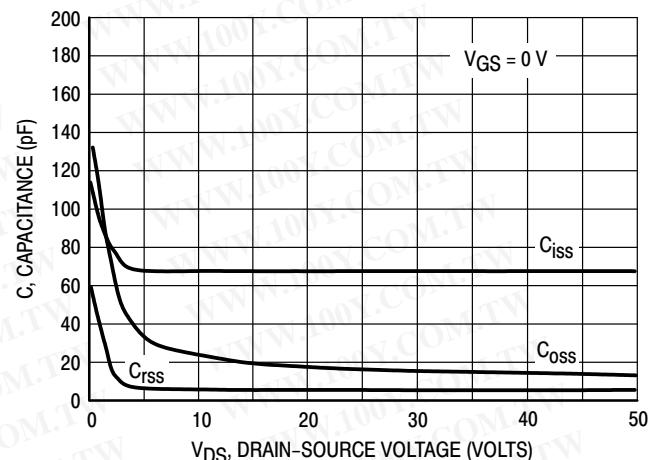


Figure 4. Capacitance Variation

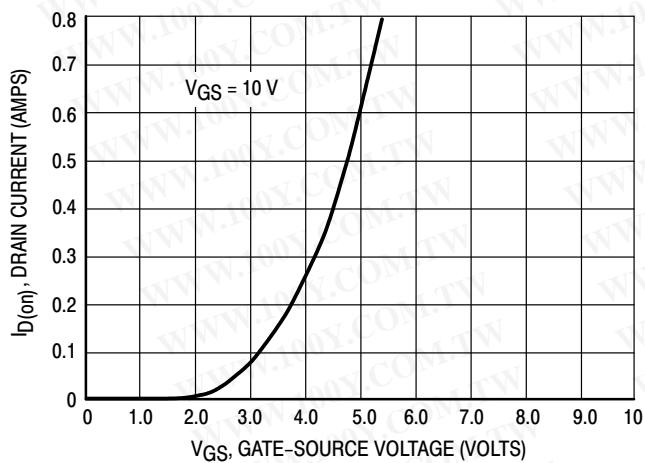


Figure 5. Transfer Characteristic

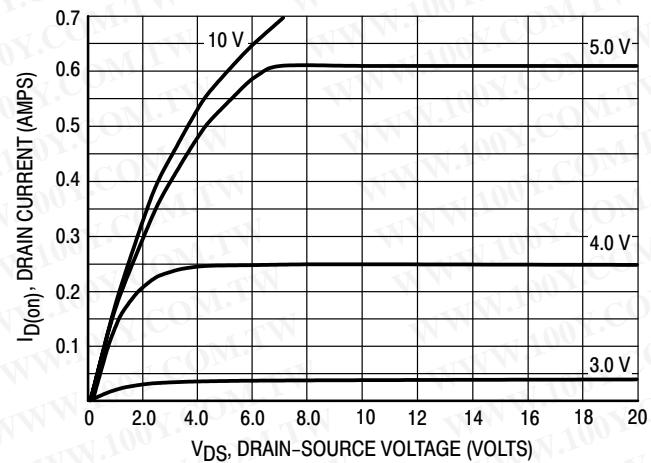


Figure 6. Output Characteristic

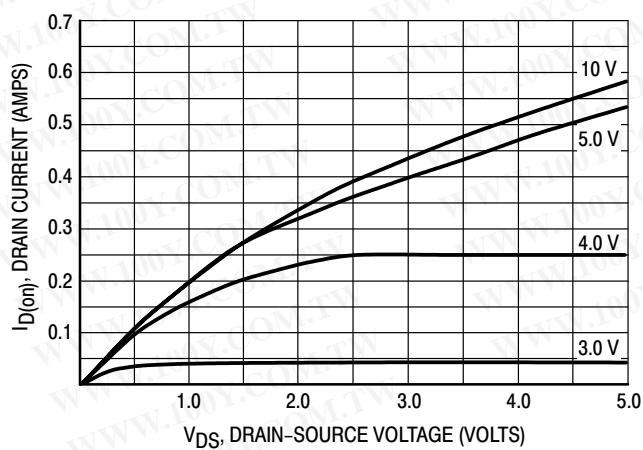


Figure 7. Saturation Characteristic

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## BS107, BS107A

### ORDERING INFORMATION

Device	Package	Shipping
BS107	TO-92	1000 Unit/Box
BS107RLRA	TO-92	2000 Tape & Reel
BS107RL1	TO-92	2000 Tape & Reel
BS107A	TO-92	1000 Units/Box
BS107ARLRM	TO-92	2000 Ammo Pack
BS107ARLP	TO-92	2000 Ammo Pack
BS107ARL1	TO-92	2000 Tape & Reel

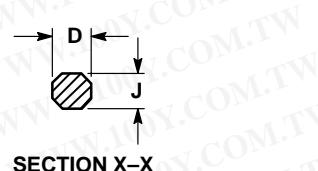
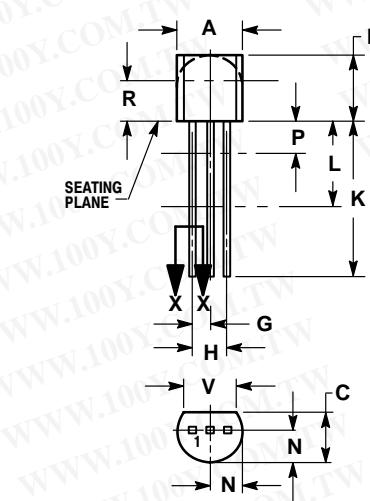
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# BS107, BS107A

## PACKAGE DIMENSIONS

TO-92  
CASE 29-11  
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.

DIM	INCHES		MILLIMETERS	
	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:

1. DRAIN
2. GATE
3. SOURCE

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