

# BS107, BS107A

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Zero-Gate-Voltage Drain Current ( $V_{DS} = 130\text{ Vdc}$ , $V_{GS} = 0$ )	$I_{DSS}$	-	-	30	nAdc
Drain-Source Breakdown Voltage ( $V_{GS} = 0$ , $I_D = 100\text{ }\mu\text{Adc}$ )	$V_{(BR)DSX}$	200	-	-	Vdc
Gate Reverse Current ( $V_{GS} = 15\text{ Vdc}$ , $V_{DS} = 0$ )	$I_{GSS}$	-	0.01	10	nAdc

### ON CHARACTERISTICS (Note 3)

Gate Threshold Voltage ( $I_D = 1.0\text{ mAdc}$ , $V_{DS} = V_{GS}$ )	$V_{GS(Th)}$	1.0	-	3.0	Vdc
Static Drain-Source On Resistance BS107 ( $V_{GS} = 2.6\text{ Vdc}$ , $I_D = 20\text{ mAdc}$ ) ( $V_{GS} = 10\text{ Vdc}$ , $I_D = 200\text{ mAdc}$ ) BS107A ( $V_{GS} = 10\text{ Vdc}$ ) ( $I_D = 100\text{ mAdc}$ ) ( $I_D = 250\text{ mAdc}$ )	$r_{DS(on)}$	- - - -	- - 4.5 4.8	28 14 6.0 6.4	$\Omega$

### SMALL-SIGNAL CHARACTERISTICS

Input Capacitance ( $V_{DS} = 25\text{ Vdc}$ , $V_{GS} = 0$ , $f = 1.0\text{ MHz}$ )	$C_{iss}$	-	60	-	pF
Reverse Transfer Capacitance ( $V_{DS} = 25\text{ Vdc}$ , $V_{GS} = 0$ , $f = 1.0\text{ MHz}$ )	$C_{rss}$	-	6.0	-	pF
Output Capacitance ( $V_{DS} = 25\text{ Vdc}$ , $V_{GS} = 0$ , $f = 1.0\text{ MHz}$ )	$C_{oss}$	-	30	-	pF
Forward Transconductance ( $V_{DS} = 25\text{ Vdc}$ , $I_D = 250\text{ mAdc}$ )	$g_{fs}$	200	400	-	mmhos

### SWITCHING CHARACTERISTICS

Turn-On Time	$t_{on}$	-	6.0	15	ns
Turn-Off Time	$t_{off}$	-	12	15	ns

3. Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## RESISTIVE SWITCHING

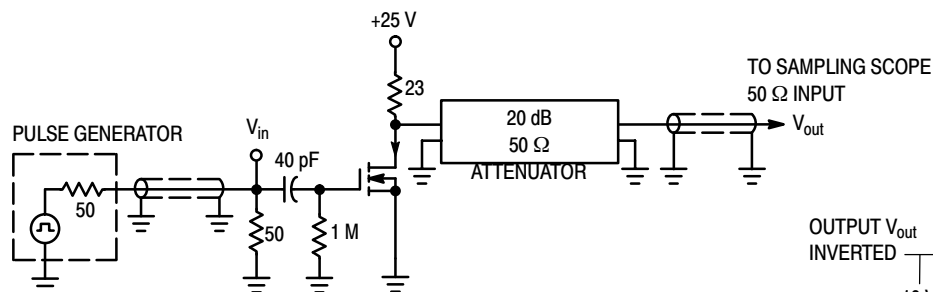


Figure 1. Switching Test Circuit

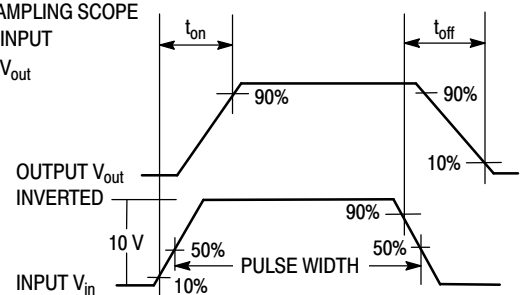


Figure 2. Switching Waveforms

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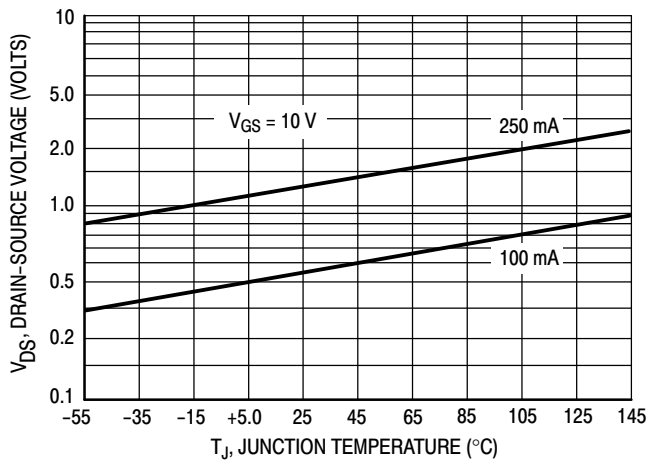


Figure 3. On Voltage versus Temperature

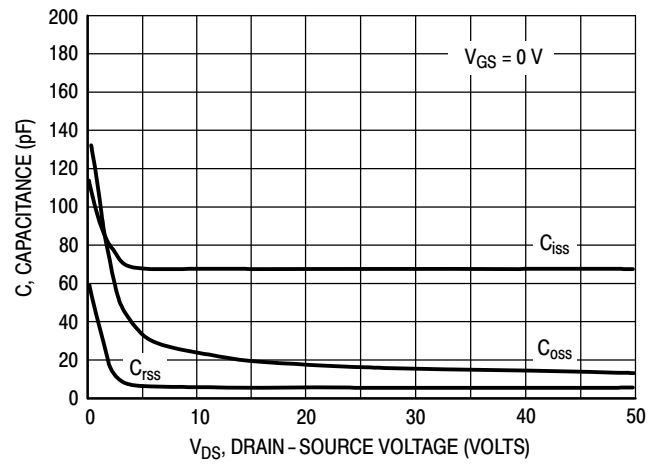


Figure 4. Capacitance Variation

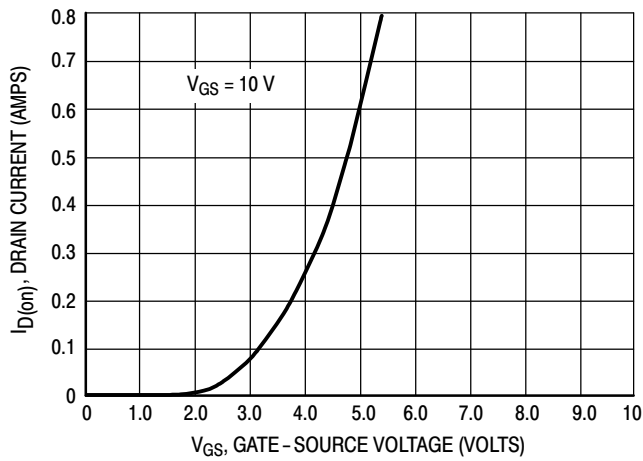


Figure 5. Transfer Characteristic

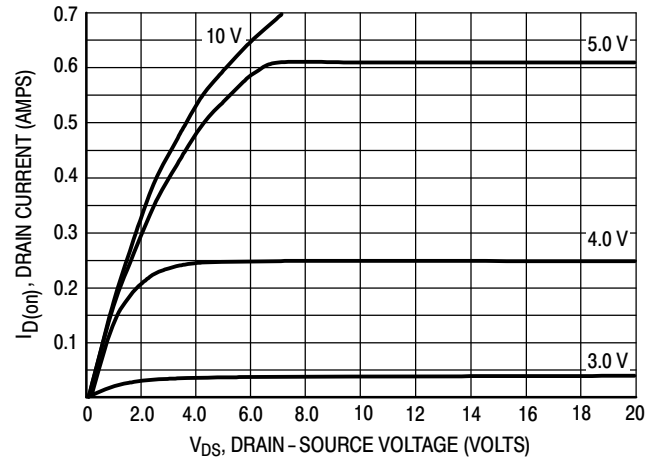


Figure 6. Output Characteristic

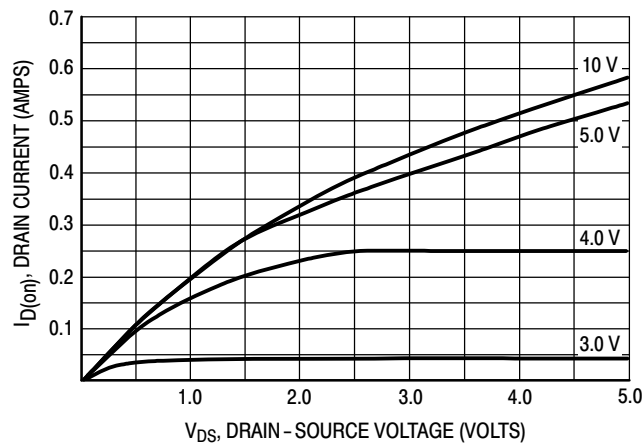


Figure 7. Saturation Characteristic

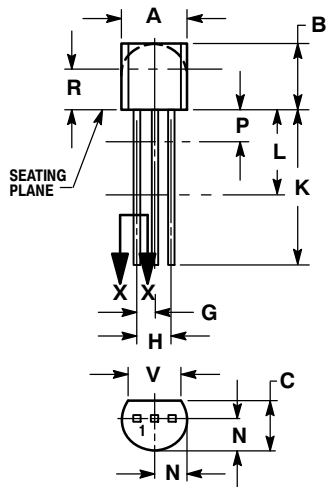
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## PACKAGE DIMENSIONS

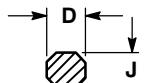
TO-92 (TO-226)

CASE 29-11

ISSUE AM



STRAIGHT LEAD  
BULK PACK



SECTION X-X


### 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
E	0.045	0.055	1.15	1.39
F	0.095	0.105	2.42	2.66
G	0.015	0.020	0.39	0.50
H	0.500	---	12.70	---
I	0.250	---	6.35	---
J	0.080	0.105	2.04	2.66
K	---	0.100	---	2.54
L	0.115	---	2.93	---
M	0.135	---	3.43	---

### STYLE 30:

1. DRAIN
2. GATE
3. SOURCE

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