



## P-CHANNEL ENHANCEMENT MODE MOSFET

This is a P-channel, enhancement-mode MOSFET, housed in the industry-standard, SOT-323 (SC-70) package. This device is ideal for portable applications where board space is at a premium.

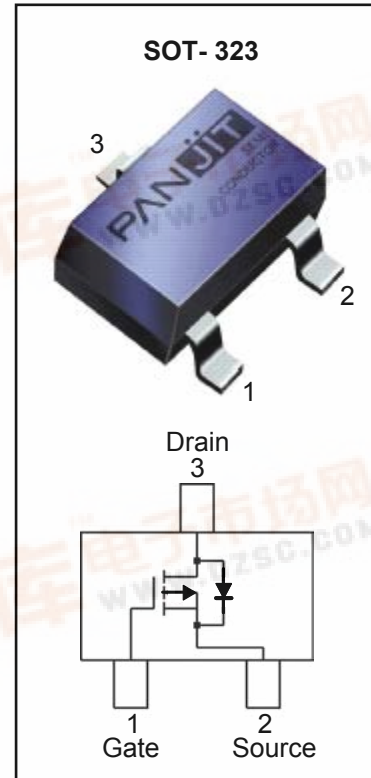
### FEATURES

- Low On-Resistance
- Low Gate Threshold Voltage
- Fast Switching
- Available in lead-free plating (100% matte tin finish)

### APPLICATIONS

- Switching Power Supplies
- Hand-Held Computers, PDAs

### MARKING CODE: 84W



### MAXIMUM RATINGS

$T_J = 25^{\circ}\text{C}$  Unless otherwise noted

Rating	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	- 50	V
Drain-Gate Voltage (Note 1)	$V_{DGR}$	- 50	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	130	mA
Total Power Dissipation (Note 2)	$P_D$	200	mW
Operating Junction Temperature Range	$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$

Note 1.  $R_{GS} < 20\text{K ohms}$

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Units
Thermal Resistance, Junction to Ambient (Note 2)	$R_{thja}$	625	$^{\circ}\text{C/W}$

Note 2. FR-5 board 1.0 x 0.75 x 0.062 inch with minimum recommended pad layout


**ELECTRICAL CHARACTERISTICS**  $T_J = 25^\circ\text{C}$  Unless otherwise noted

**OFF CHARACTERISTICS (Note 3)**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D = -250\mu\text{A}$ , $V_{GS} = 0\text{V}$	-50	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -50\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 25^\circ\text{C}$	-	-	-15	$\mu\text{A}$
		$V_{DS} = -50\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 125^\circ\text{C}$	-	-	-60	
		$V_{DS} = -25\text{V}$ , $V_{GS} = 0\text{V}$ , $T_J = 25^\circ\text{C}$	-	-	-0.1	
Gate-Body Leakage	$I_{GSS}$	$V_{GS} = \pm 20\text{V}$ , $V_{DS} = 0\text{V}$	-	-	$\pm 10$	nA

**ON CHARACTERISTICS (Note 3)**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = -1\text{mA}$	-0.8	-1.44	-2.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -5\text{V}$ , $I_D = -0.1\text{A}$	-	3.8	10	Ohms
Forward Transconductance	$g_{FS}$	$V_{DS} = -25\text{V}$ , $I_D = -0.1\text{A}$	0.05	-	-	S

**DYNAMIC CHARACTERISTICS**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Input Capacitance	$C_{iss}$	$V_{DS} = -25\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1.0\text{MHz}$	-	-	45	pF
Output Capacitance	$C_{oss}$		-	-	25	pF
Reverse Transfer Capacitance	$C_{rss}$		-	-	12	pF

**SWITCHING CHARACTERISTICS**

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = -30\text{V}$ , $I_D = -0.27\text{A}$ , $R_{GEN} = 50\text{ohm}$ , $V_{GS} = -10\text{V}$	-	7.5	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	25	-	ns

Note 3. Short duration test pulse used to minimize self-heating



# BSS84W

PANJIT  
SEMI  
CONDUCTOR

## ELECTRICAL CHARACTERISTIC CURVES

$T_J = 25^\circ\text{C}$  Unless otherwise noted

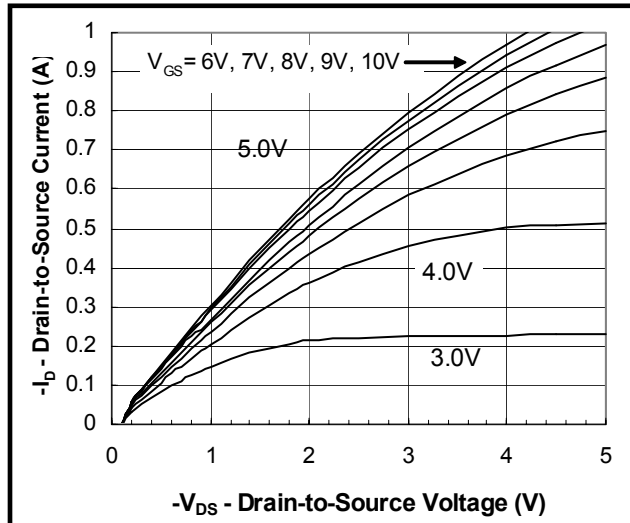


Fig. 1. Output Characteristics

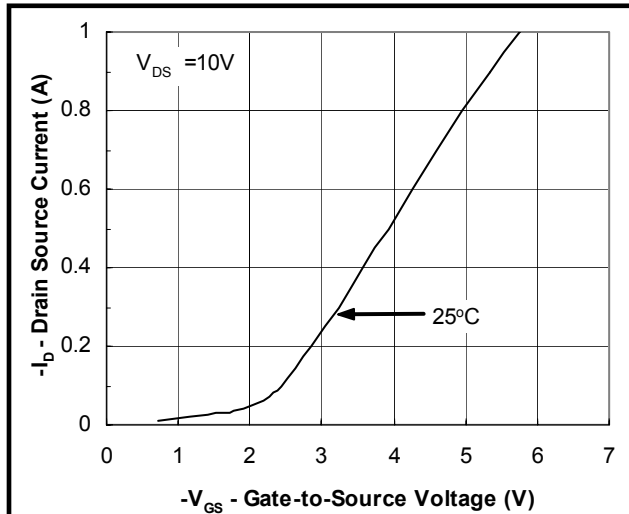


Fig. 2. Transfer Characteristics

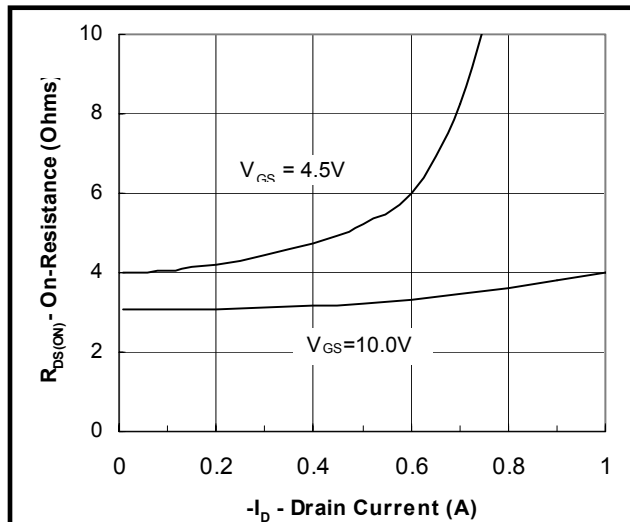


Fig. 3. On-Resistance vs. Drain Current

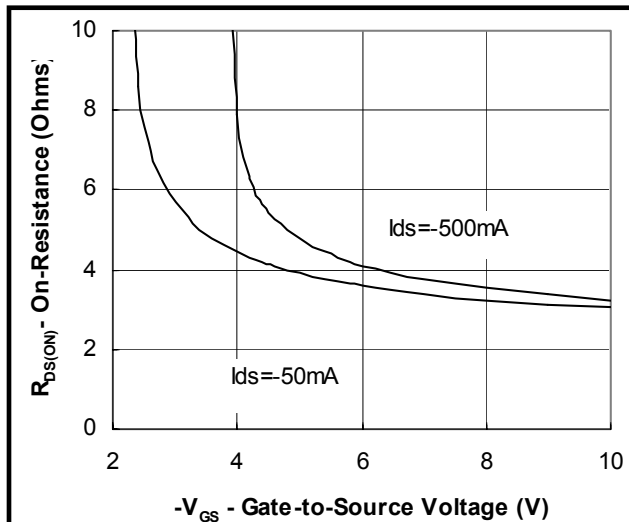


Fig. 4. On-Resistance vs. G-S Voltage

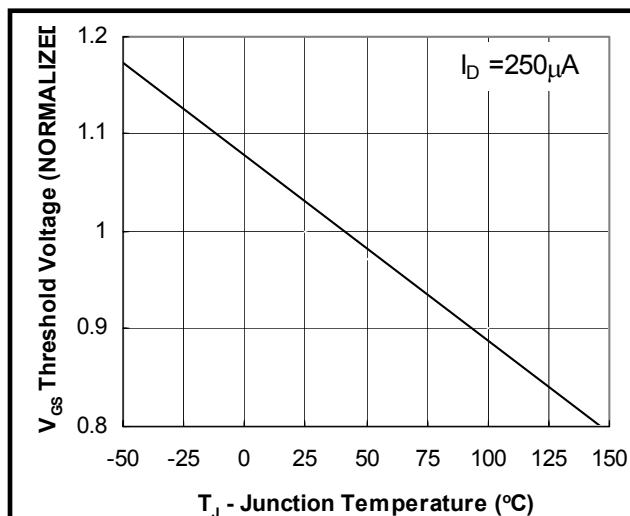


Fig. 5. Threshold Voltage vs. Temperature

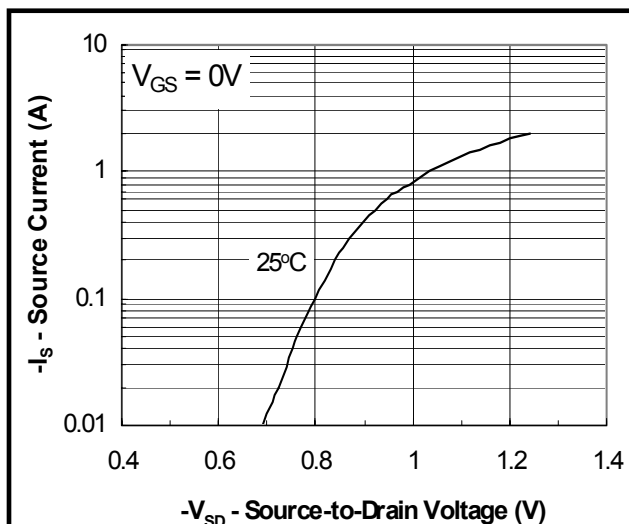
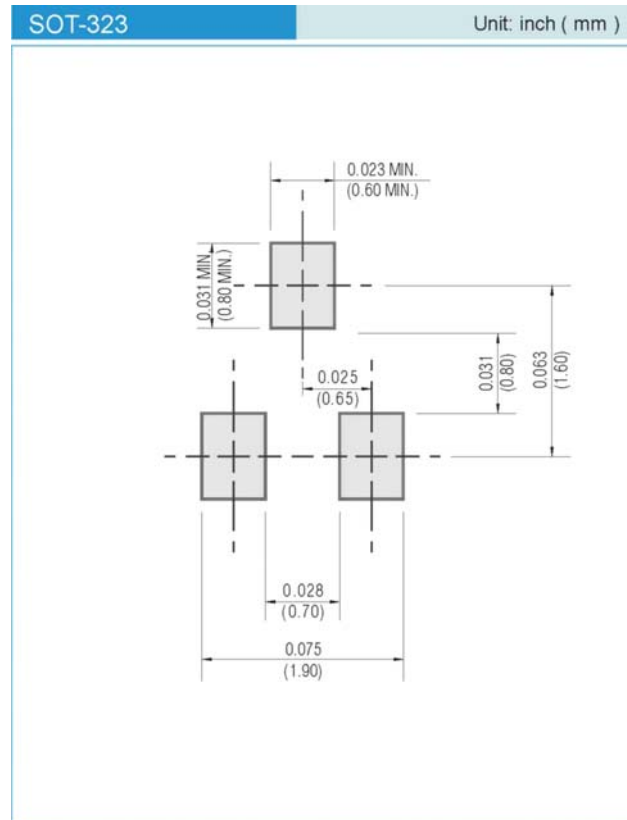
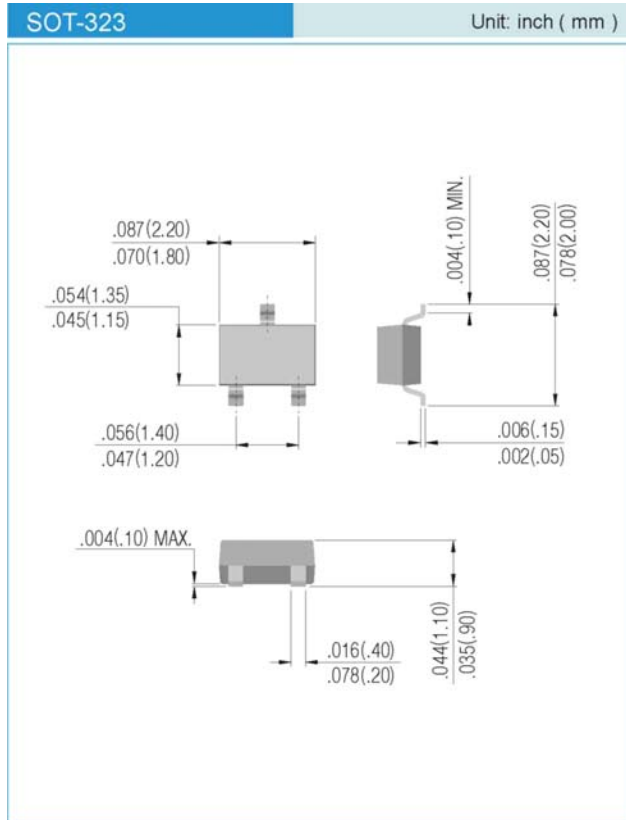


Fig. 6. Source-Drain Diode Forward Voltage



## PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS



## ORDERING INFORMATION

BSS84W T/R7 - 7 inch reel, 3K units per reel

BSS84W T/R13 - 13 inch reel, 10K units per reel

## Copyright PanJit International, Inc 2005

The information presented in this document is believed to be accurate and reliable. The specifications and information herein are subject to change without notice. Pan Jit makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. Pan Jit products are not authorized for use in life support devices or systems. Pan Jit does not convey any license under its patent rights or rights of others.