BSS84W

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.
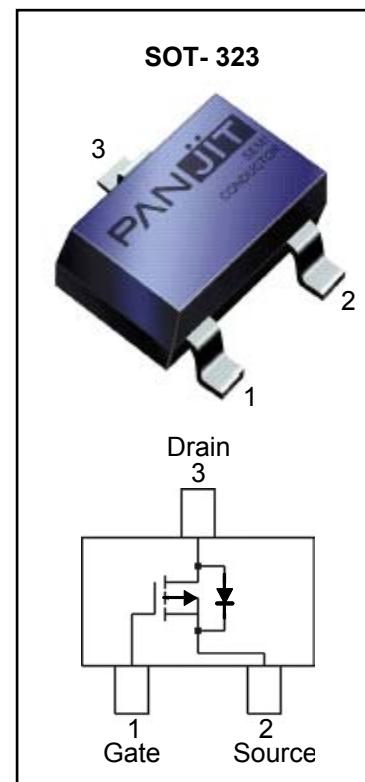
FEATURES

● **Low On-Resistance**

● **Low Gate Threshold Voltage**

● **Fast Switching**

● **In compliance with EU RoHS 2002/95/EC directives**

APPLICATIONS

● **Switching Power Supplies**

● **Hand-Held Computers, PDAs**

MARKING CODE: 84W

SOT- 323

Drain
3

1   2
Gate   Source

MAXIMUM RATINGS T_J = 25°C Unless otherwise noted

Rating	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	- 50	V
Drain-Gate Voltage (Note 1)	V_{DGR}	- 50	V
Gate-Source Voltage	V_{GSS}	± 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	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

Note 1. R_{GS} < 20K ohms

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Units
Thermal Resistance, Junction to Ambient (Note 2)	R_{thja}	625	°C/W

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

ELECTRICAL CHARACTERISTICS $T_J = 25°C$ Unless otherwise noted

OFF CHARACTERISTICS (Note 3)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = -250µA, V_{GS} = 0V	-50	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -50V, V_{GS} = 0V, T_J = 25°C	-	-	-15	µA
		V_{DS} = -50V, V_{GS} = 0V, T_J = 125°C	-	-	-60	
		V_{DS} = -25V, V_{GS} = 0V, T_J = 25°C	-	-	-0.1	
Gate-Body Leakage	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±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 = -1mA	-0.8	-1.44	-2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = -5V, I_D = -0.1A	-	3.8	10	Ohms
Forward Transconductance	g_{FS}	V_{DS} = -25V, I_D = -0.1A	0.05	-	-	S

DYNAMIC CHARACTERISTICS

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Input Capacitance	C_{iss}	V_{DS} = -25V, V_{GS} = 0V, f = 1.0MHz	-	-	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} = -30V, I_D = -0.27A, R_{GEN} = 50ohm, V_{GS} = -10V	-	7.5	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	25	-	ns

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

ELECTRICAL CHARACTERISTIC CURVES T_J = 25°C Unless otherwise noted
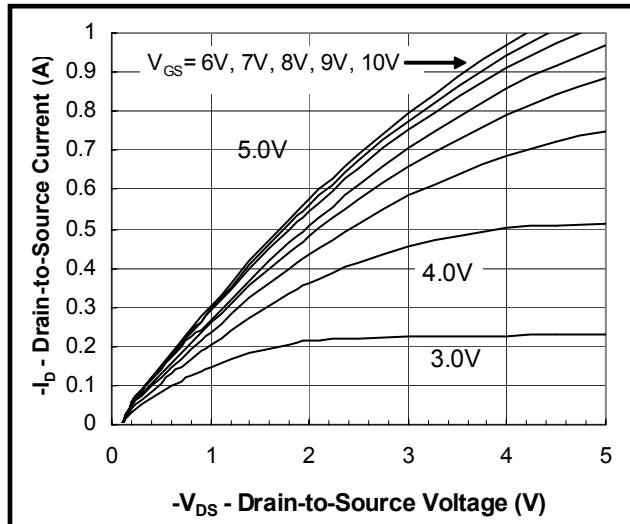
**Fig. 1. Output Characteristics**
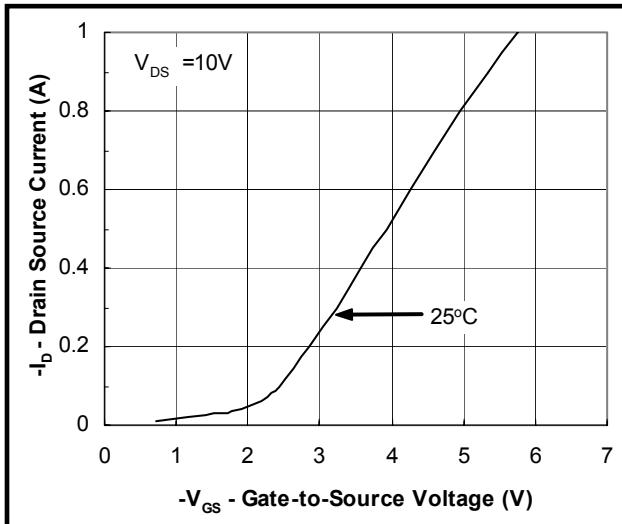
Fig. 2. Transfer Characteristics
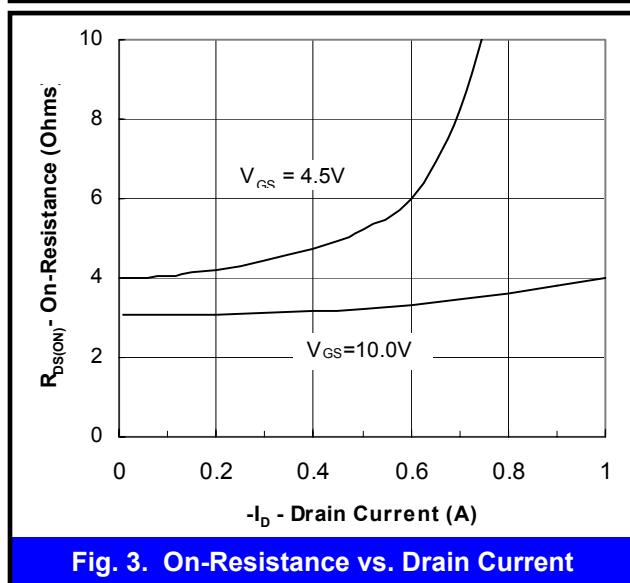
Fig. 3. On-Resistance vs. Drain Current
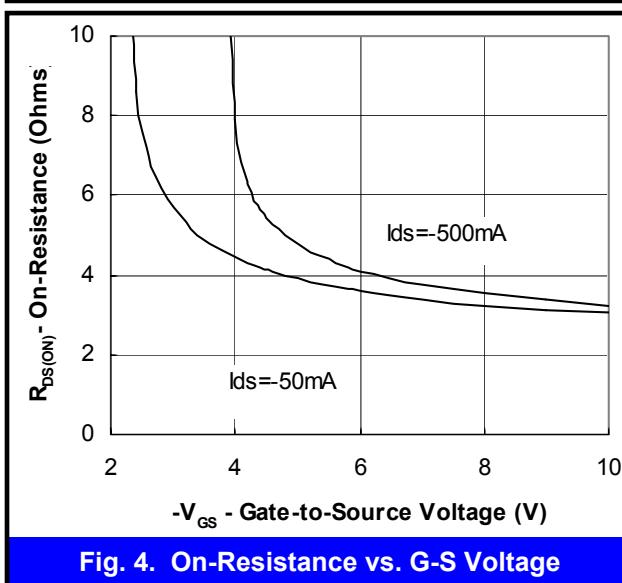
Fig. 4. On-Resistance vs. G-S Voltage
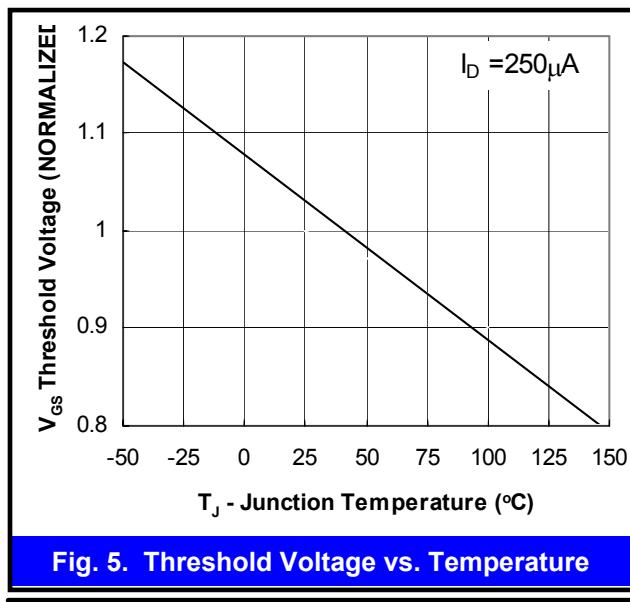
Fig. 5. Threshold Voltage vs. Temperature
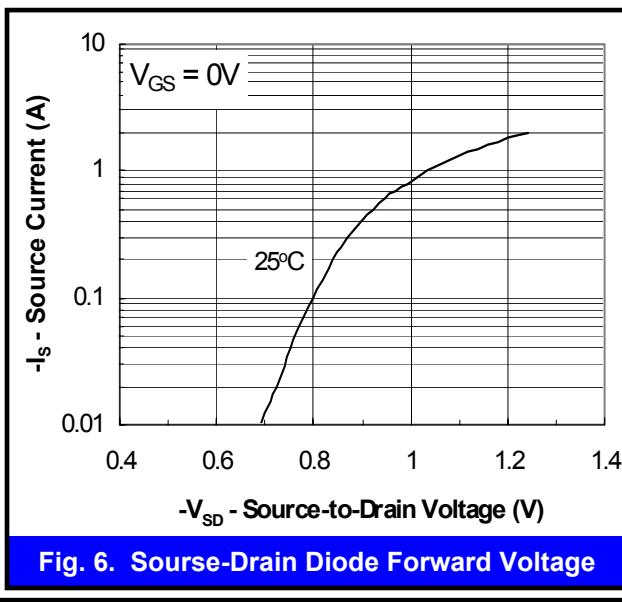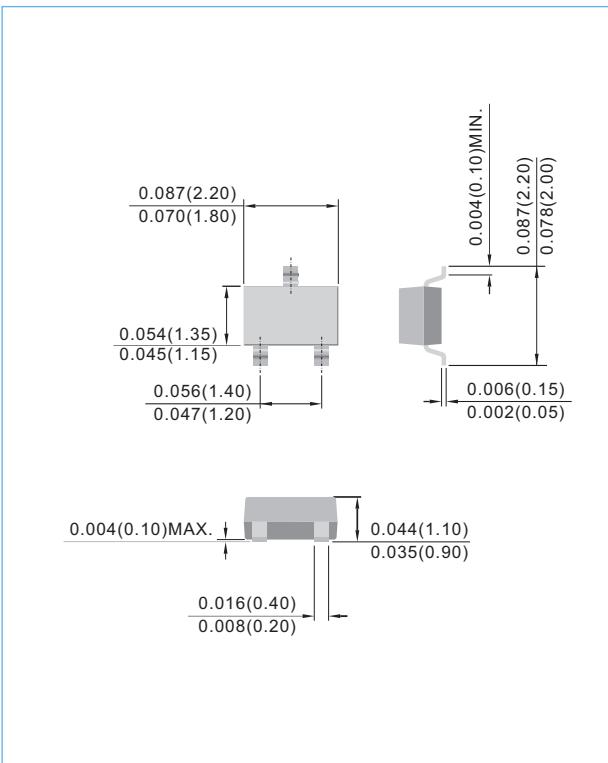
Fig. 6. Sourse-Drain Diode Forward Voltage
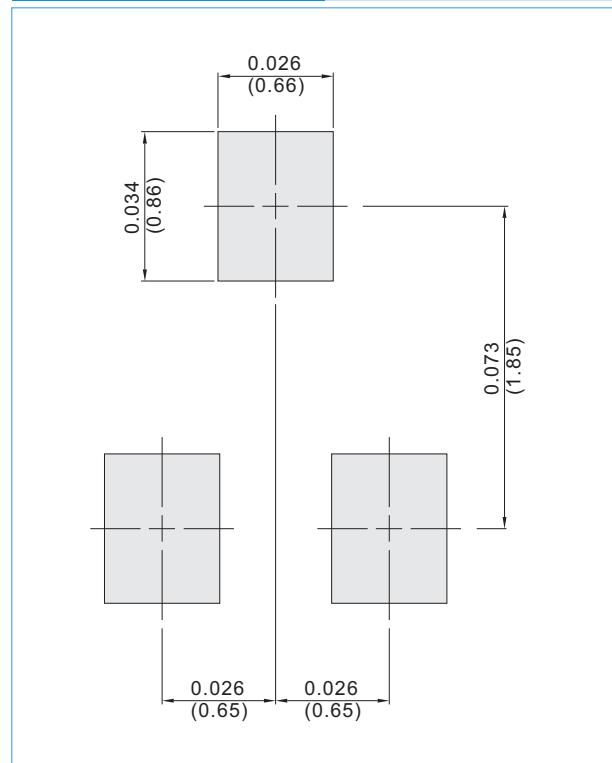
PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS

SOT-323
Unit : inch(mm)

0.087(2.20)
0.070(1.80)

0.004(0.10)MIN.

0.087(2.20)
0.078(2.00)

0.054(1.35)
0.045(1.15)

0.056(1.40)
0.047(1.20)

0.006(0.15)
0.002(0.05)

0.004(0.10)MAX.

0.044(1.10)
0.035(0.90)

0.016(0.40)
0.008(0.20)

SOT-323
Unit：inch(mm)

0.026
(0.66)

0.034
(0.86)

0.073
(1.85)

0.026
(0.65)

0.026
(0.65)

ORDERING INFORMATION

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

BSS84W T/R13 - 13 inch reel, 12K units per reel

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