BSS84

P-CHANNEL ENHANCEMENT MODE MOSFET

This is a P-channel, enhancement-mode MOSFET, housed in the industry-standard, SOT-23 package. This device is ideal for portable applications where board space is at a premium.
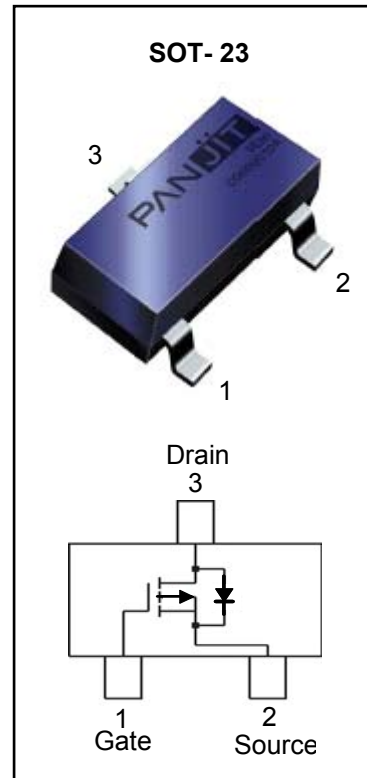
FEATURES

- **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: 84L

SOT- 23

Drain
3

1
Gate

2
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

BSS84

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
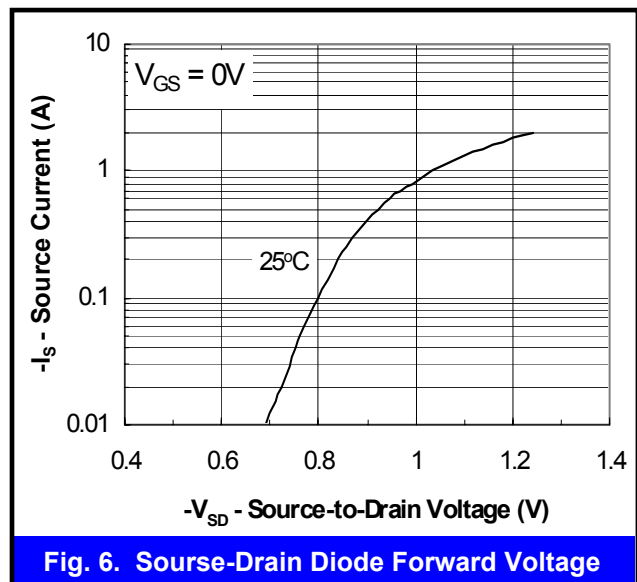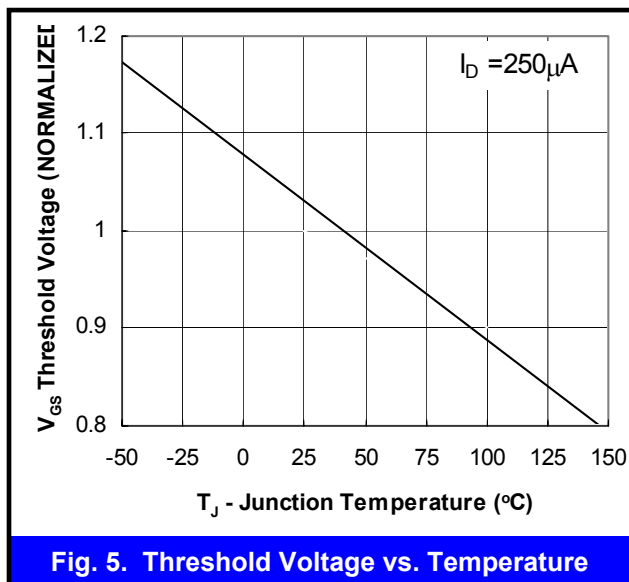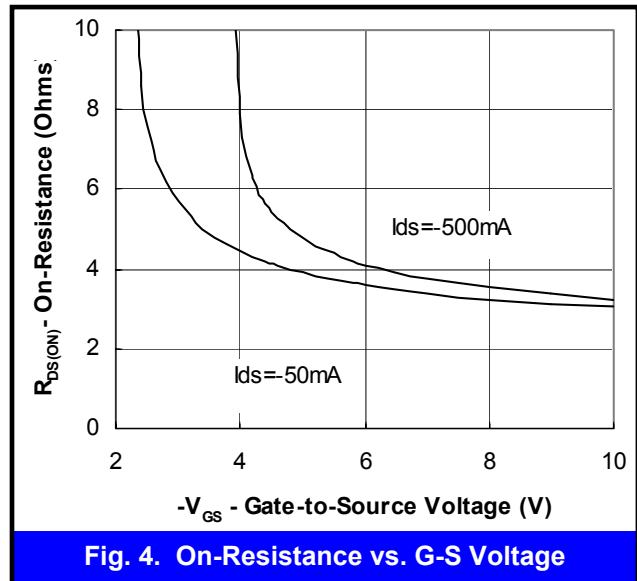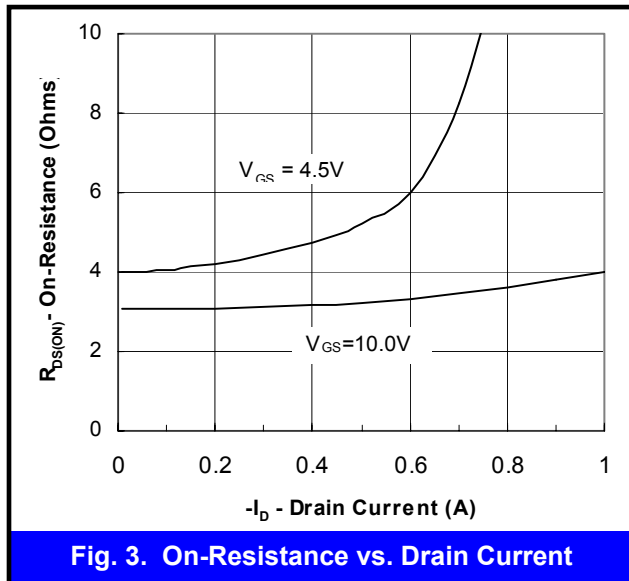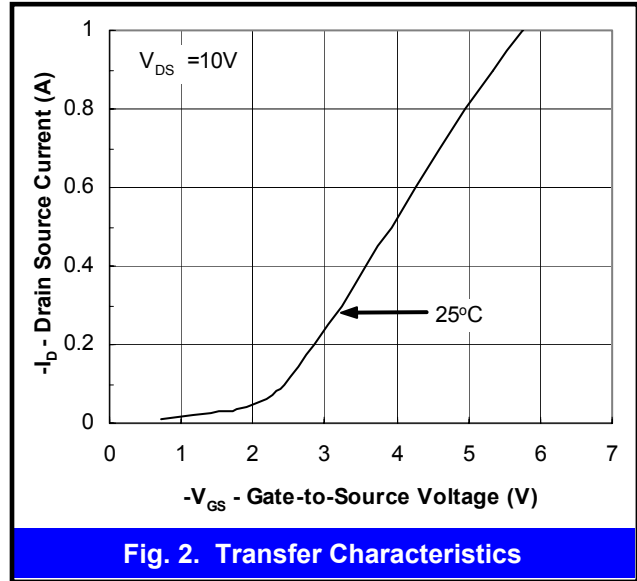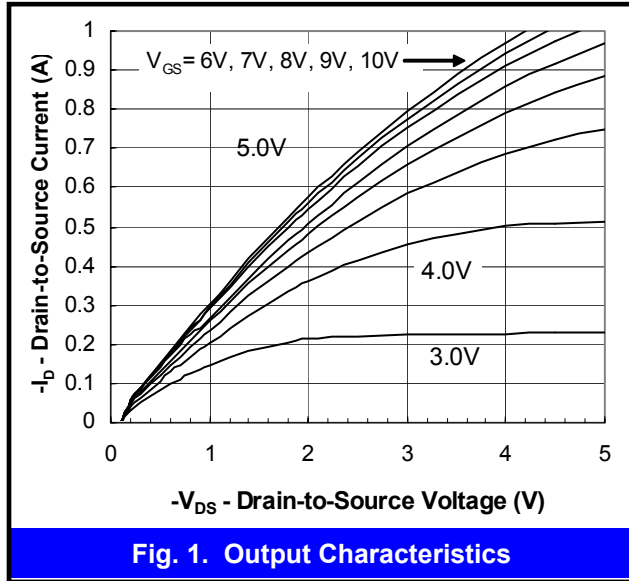
PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS

SOT-23 — Unit: inch (mm)

.119(3.00)
.110(2.80)

.056(1.40)
.047(1.20)

.007(.20) MIN.

.103(2.60)
.086(2.20)

.083(2.10)
.066(1.70)

.006(.15)
.002(.05)

.006(.15) MAX.

.020(.50)
.014(.35)

.044(1.10)
.035(.90)

SOT-23 — Unit: inch (mm)

0.031 MIN.
(0.80 MIN.)

0.035 MIN.
(0.90 MIN.)

0.037
(0.95)

0.043
(1.10)

0.078
(2.00)

0.043
(1.10)

0.106
(2.70)
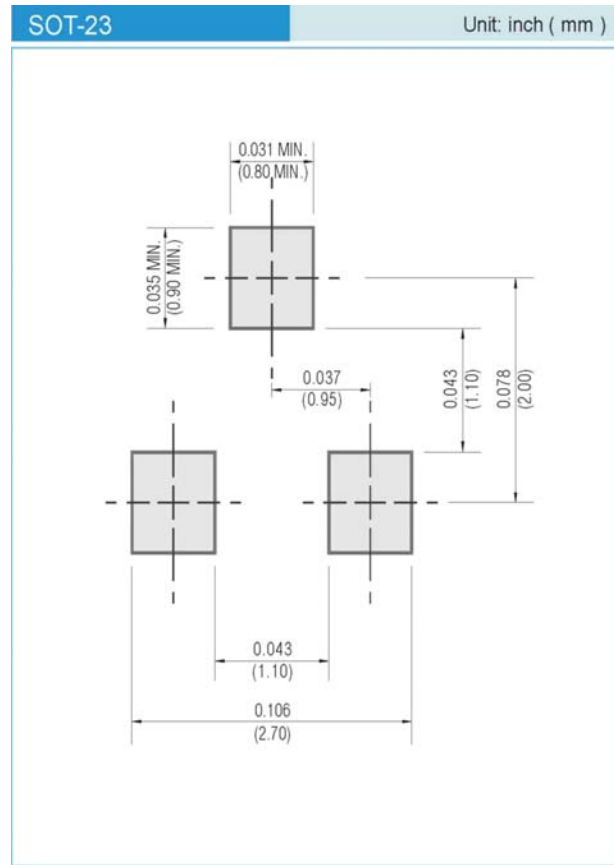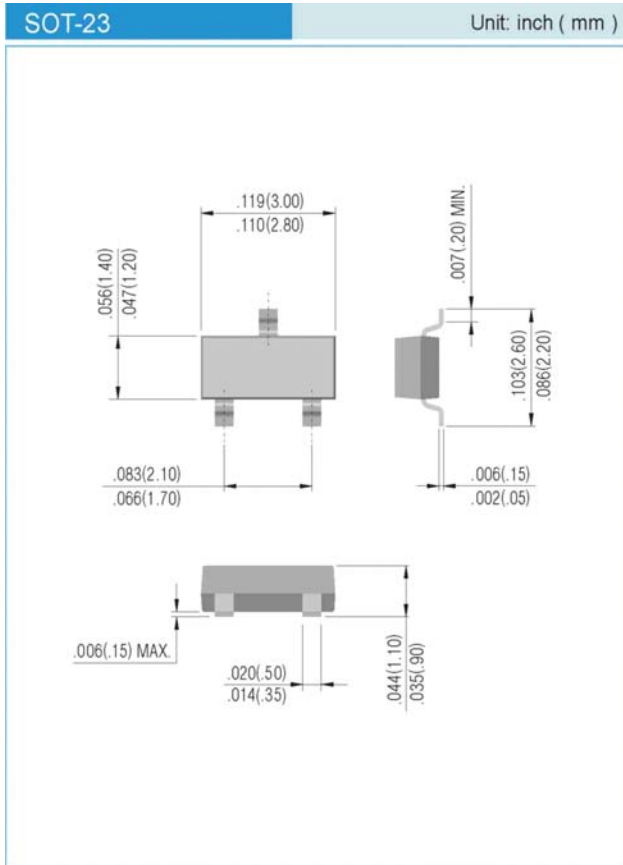
ORDERING INFORMATION

BSS84 T/R7 - 7 inch reel, 3K units per reel

BSS84 T/R13 - 13 inch reel, 10K units per reel

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