



## 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
- Lead free in Vt a d'JUbW'k JH '9I 'Fc<G&'fB\$%#) #0I / ' &\$%) # \* ) #0I 'XjfYWfj YL
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case:SOT-23
- Terminals:Solder plated,solderable per MIL-STD-750,Method2026
- Approx. Weight: 0.0003 ounces, 0.0084 grams
- Marking code: 84L

### APPLICATIONS

- Switching Power Supplies
- Hand-Held Computers, PDAs

### MAXIMUM RATINGS

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

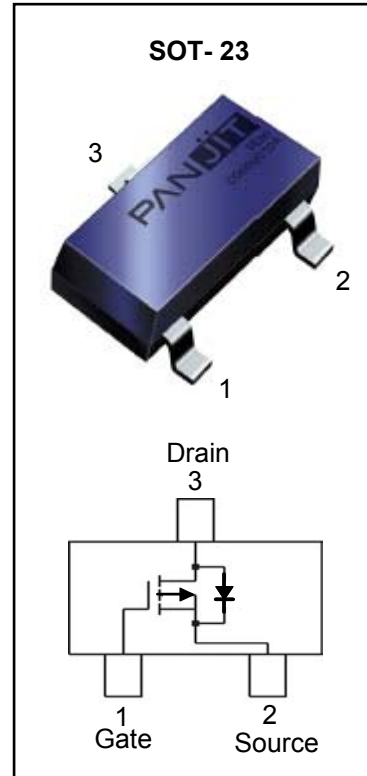
Rating	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	- 50	V
Drain-Gate Voltage (Note 1)	$V_{DGR}$	- 50	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current	$I_D$	130	mA
Total Power Dissipation (Note 2)	$P_D$	200	mW
Operating Junction Temperature Range	$T_J$	-55 to +150	$^{\circ}\text{C}$
Storage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

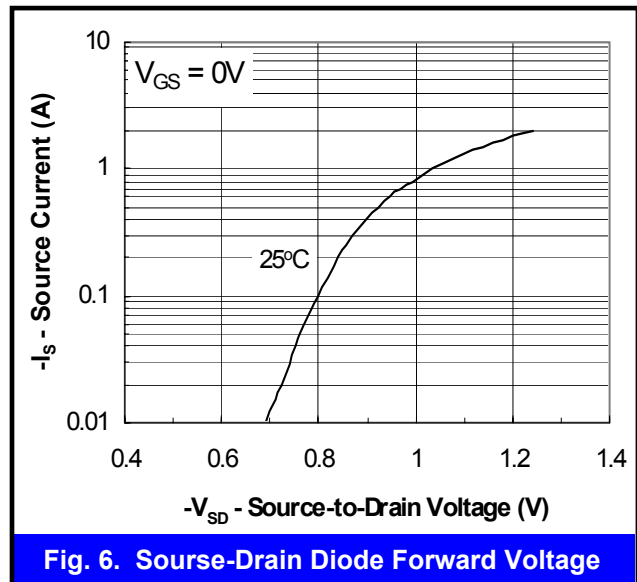
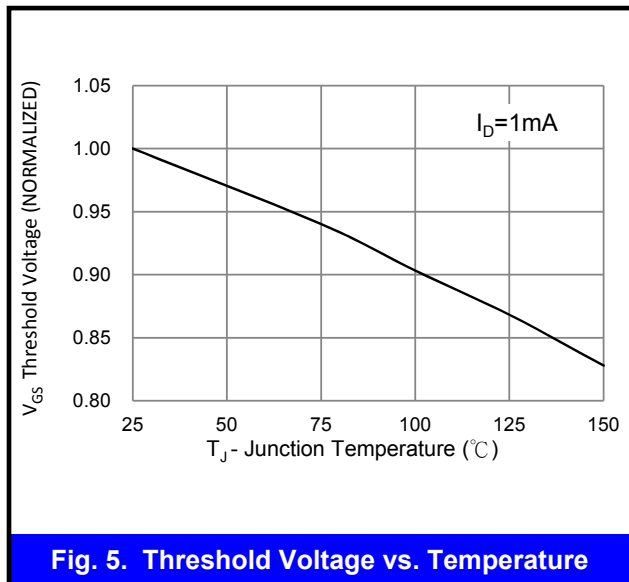
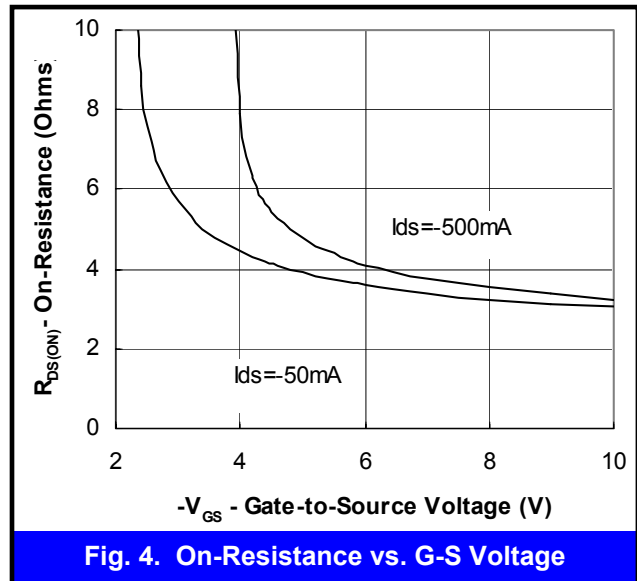
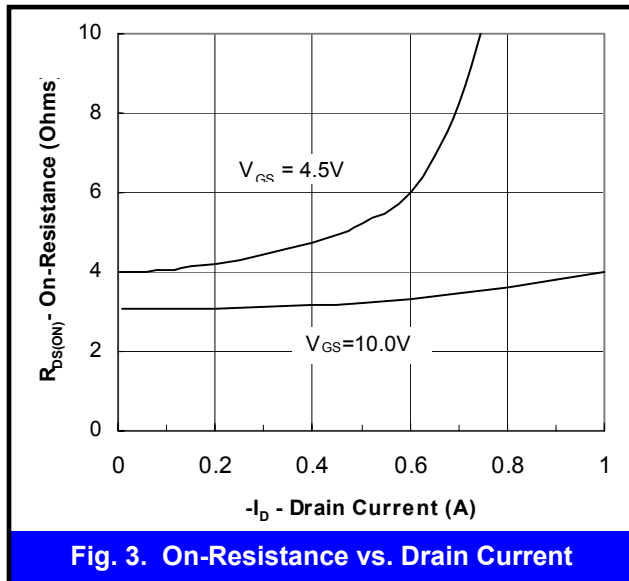
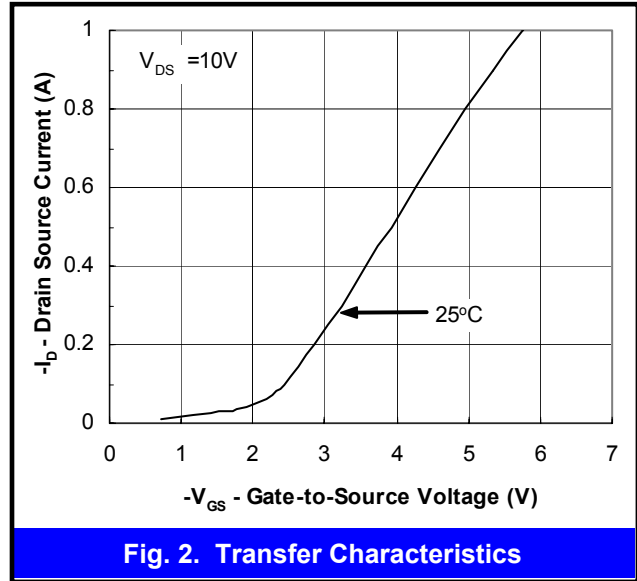
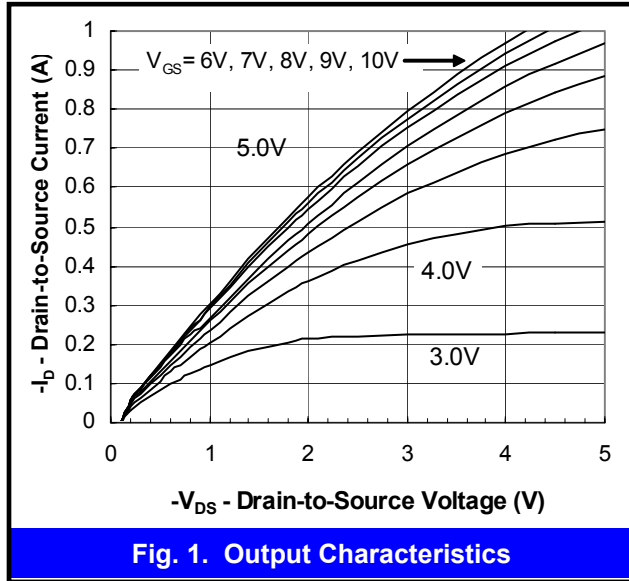
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD} = -30\text{V}, I_D = -0.27\text{A}, R_{GEN} = 50\text{ohm}, V_{GS} = -10\text{V}$	-	7.5	-	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	25	-	ns

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



## ELECTRICAL CHARACTERISTIC CURVES

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

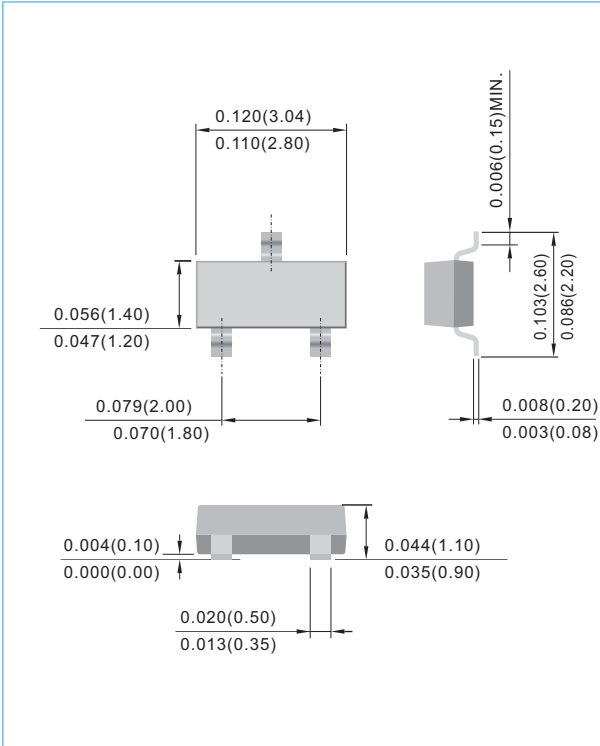




## PACKAGE LAYOUT AND SUGGESTED PAD DIMENSIONS

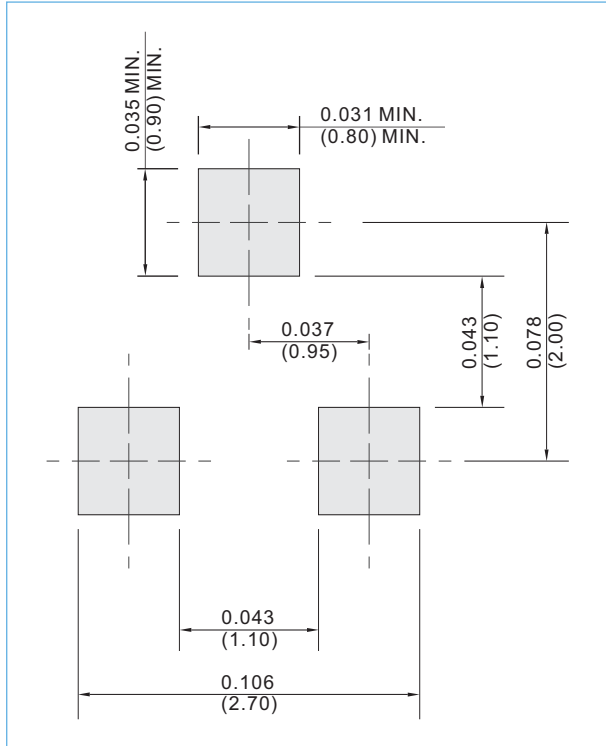
### SOT-23

Unit : inch (mm)



### SOT-23

Unit : inch (mm)



## ORDERING INFORMATION

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

BSS84 T/R13 - 13 inch reel, 12K units per reel



### Part No\_packing code\_Version

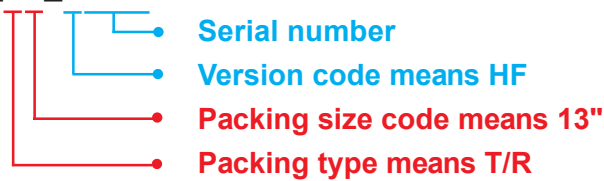
BSS84\_R1\_00001

BSS84\_R2\_00001

For example :

**RB500V-40\_R2\_00001**

Part No.



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	HF	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	RoHS	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



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