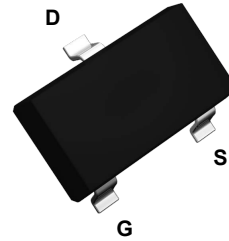
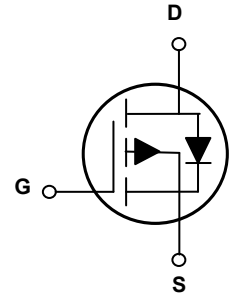


**Main Product Characteristics**

$V_{(BR)DSS}$	-50V
$R_{DS(on)Max}$	8Ω@-10V
	10Ω@ -5V
$I_D$	-0.13A



SOT-23



Schematic Diagram

**Features and Benefits**

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



**Description**

The BSS84 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

**Absolute Maximum Ratings** ( $T_A=25^{\circ}C$  unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	-0.13	A
Pulsed Drain Current <sup>1</sup> @ $t_p < 10\mu s$	$I_{DM}$	-0.52	A
Power Dissipation	$P_D$	225	mW
Thermal Resistance from Junction to Ambient <sup>2</sup>	$R_{\theta JA}$	556	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 to +150	°C
Maximum Lead Temperature for Soldering Purposes, Duration for 5 Seconds	$T_L$	260	°C

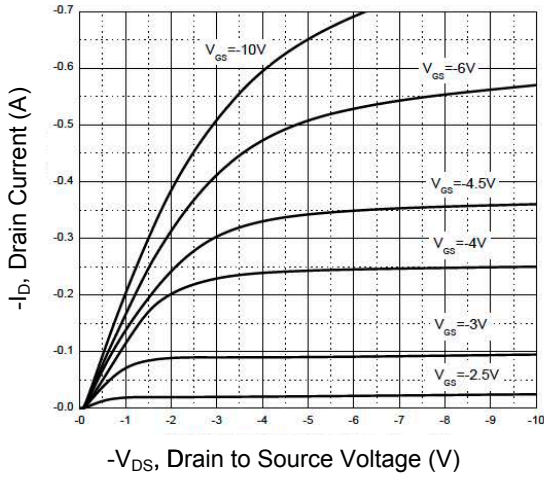
**Electrical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>On / Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-50	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-50V, V_{GS}=0V$	-	-	-15	$\mu A$
		$V_{DS}=-25V, V_{GS}=0V$	-	-	-0.1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 5$	$\mu A$
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(ON)}$	$V_{GS}=-5V, I_D=-0.1A$	-	-	10	$\Omega$
		$V_{GS}=-10V, I_D=-0.1A$	-	-	8	$\Omega$
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS}=-25V, I_D=-100mA$	50	-	-	mS
Gate Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.9	-	-2	V
<b>Dynamic and Switching Characteristics</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=50\Omega$ $I_D=-2.5A$	-	2.5	-	nS
Rise Time	$t_r$		-	1	-	
Turn-Off Delay Time	$t_{d(off)}$		-	16	-	
Fall Time	$t_f$		-	8	-	
Input Capacitance	$C_{iss}$	$V_{DS}=-5V, V_{GS}=0V,$ $F=1MHz$	-	30	-	pF
Output Capacitance	$C_{oss}$		-	10	-	
Reverse Transfer Capacitance	$C_{rss}$		-	5	-	
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Current	$I_S$	-	-	-	-0.13	A
Pulse Current	$I_{SM}$	-	-	-	-0.52	A
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$V_{GS}=0V, I_S=-0.13A$	-	-	-2.2	V

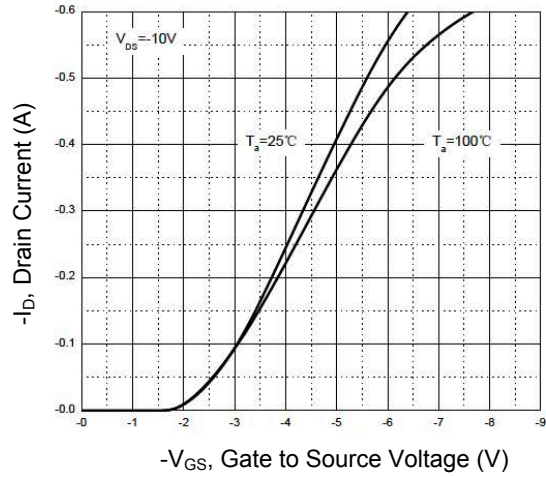
Notes:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board,  $t \leq 10s$ .
3. Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .

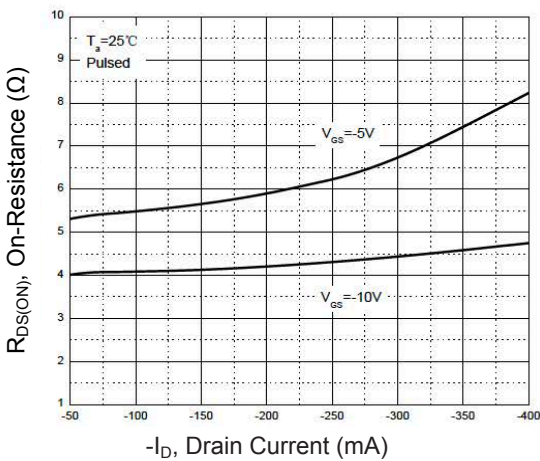
**Typical Electrical and Thermal Characteristics**



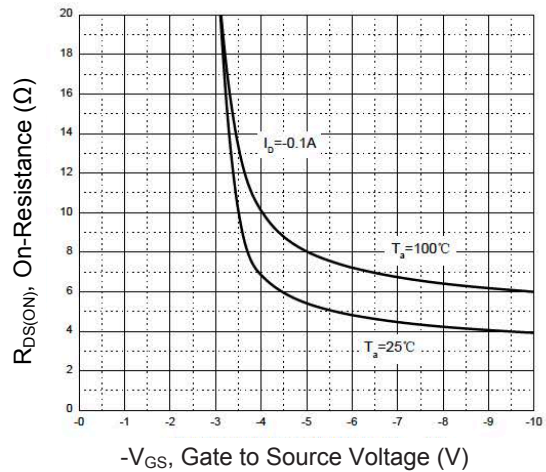
**Figure 1. Output Characteristics**



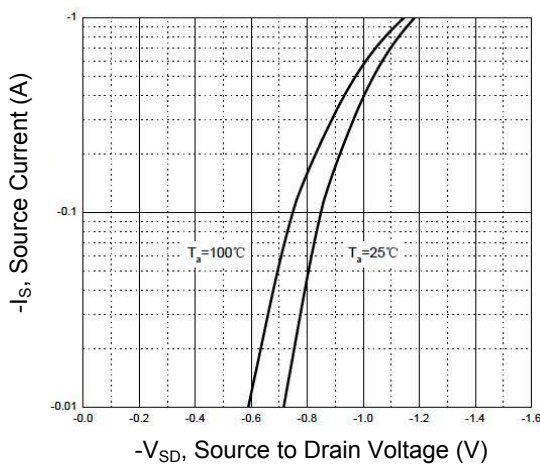
**Figure 2. Transfer Characteristics**



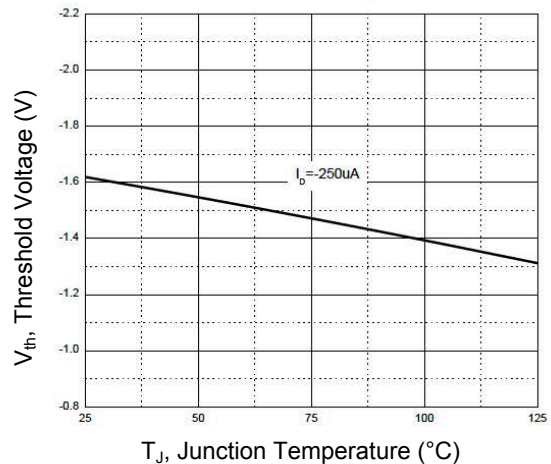
**Figure 3.  $R_{DS(ON)}$  vs.  $I_D$**



**Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$**

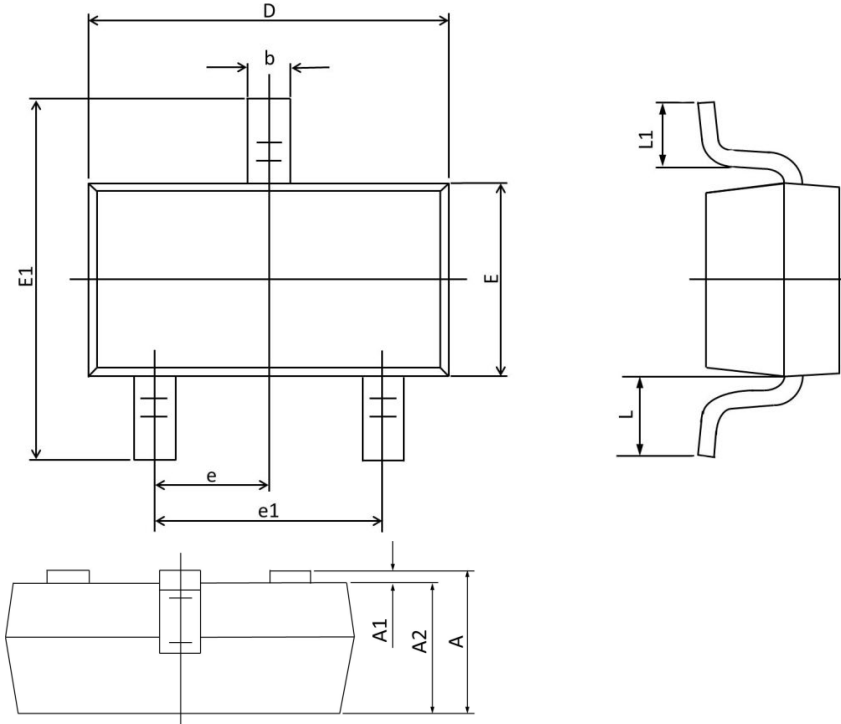


**Figure 5.  $I_S$  vs.  $V_{SD}$**



**Figure 6. Threshold Voltage**

**Package Outline Dimensions (SOT-23)**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.047
A1	0.000	0.100	0.000	0.004
A2	0.900	1.150	0.035	0.045
b	0.300	0.500	0.012	0.020
D	2.800	3.040	0.110	0.120
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.55 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020

**Order Information**

Device	Package	Marking	Packaging	SPQ
BSS84	SOT-23	B84	Tape & Reel	3,000pcs / Reel