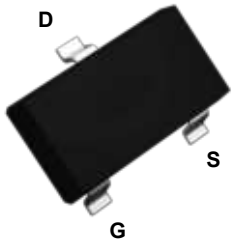
GOOD-ARK SEMICONDUCTOR

BSS84

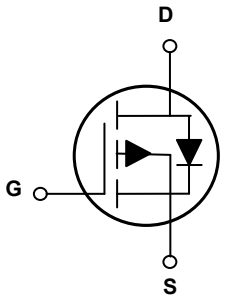
50V P-Channel MOSFET

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°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[1] @ tp<10μs	I_{DM}	-0.52	A
Power Dissipation	P_D	225	mW
Thermal Resistance from Junction to Ambient[2]	$R_{\theta JA}$	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°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-50	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-50V, V_{GS}=0V	-	-	-15	μA
		V_{DS}=-25V, V_{GS}=0V	-	-	-0.1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±5	μA
Static Drain-Source On-Resistance[3]	$R_{DS(ON)}$	V_{GS}=-5V, I_D=-0.1A	-	-	10	Ω
		V_{GS}=-10V, I_D=-0.1A	-	-	8	Ω
Forward Transconductance[1]	gfs	V_{DS}=-25V, I_D=-100mA	50	-	-	mS
Gate Threshold Voltage[3]	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=-250uA	-0.9	-	-2	V
Dynamic and Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=50Ω 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	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Current	I_S	-	-	-	-0.13	A
Pulse Current	I_{SM}		-	-	-0.52	A
Diode Forward Voltage[3]	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 ≤10s.
3. Pulse test: pulse width ≤300μs, duty cycle ≤2%.

Typical Electrical and Thermal Characteristics

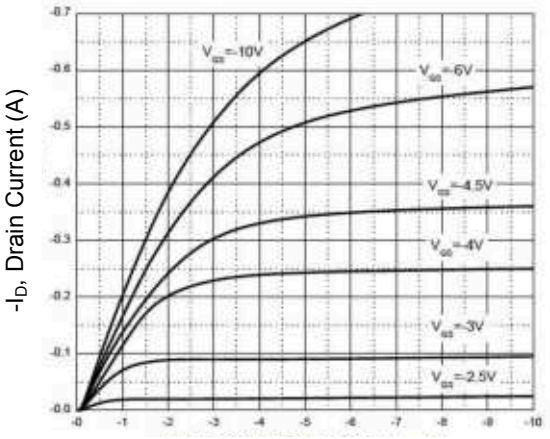


Figure 1. Output Characteristics

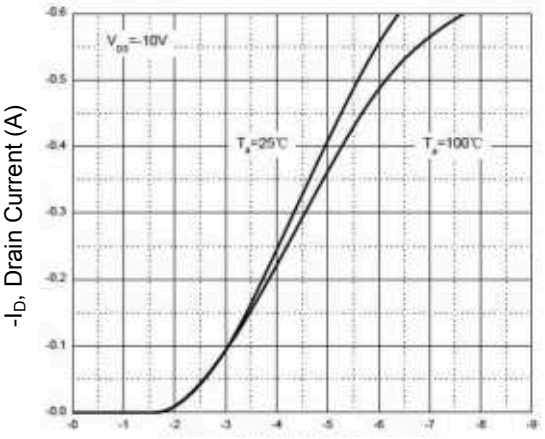


Figure 2. Transfer Characteristics

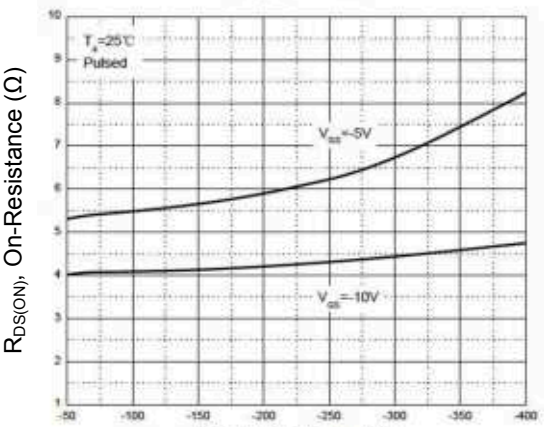


Figure 3. $R_{DS(ON)}$ vs. I_D

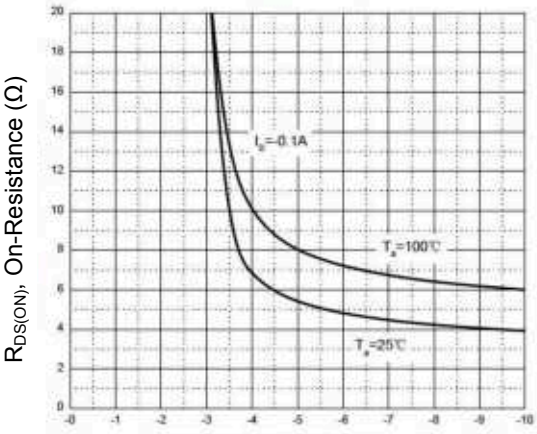


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

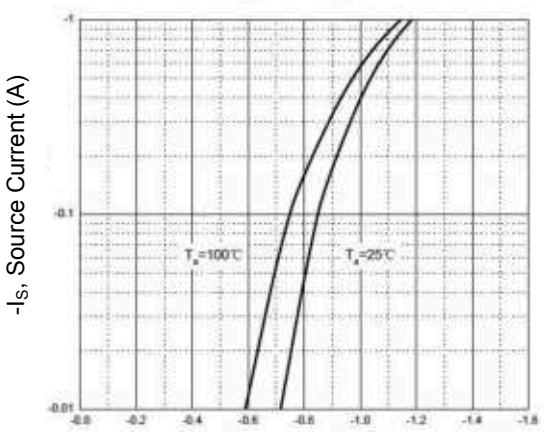


Figure 5. I_S vs. V_{SD}

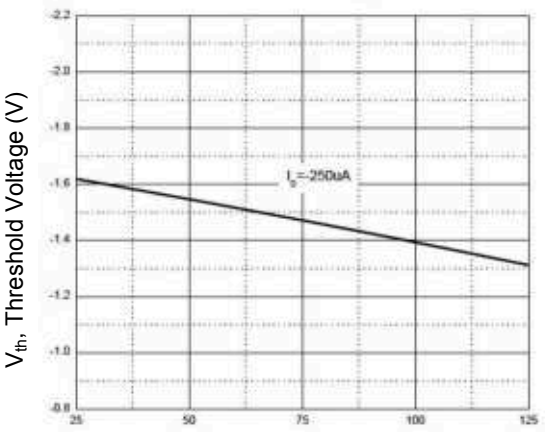
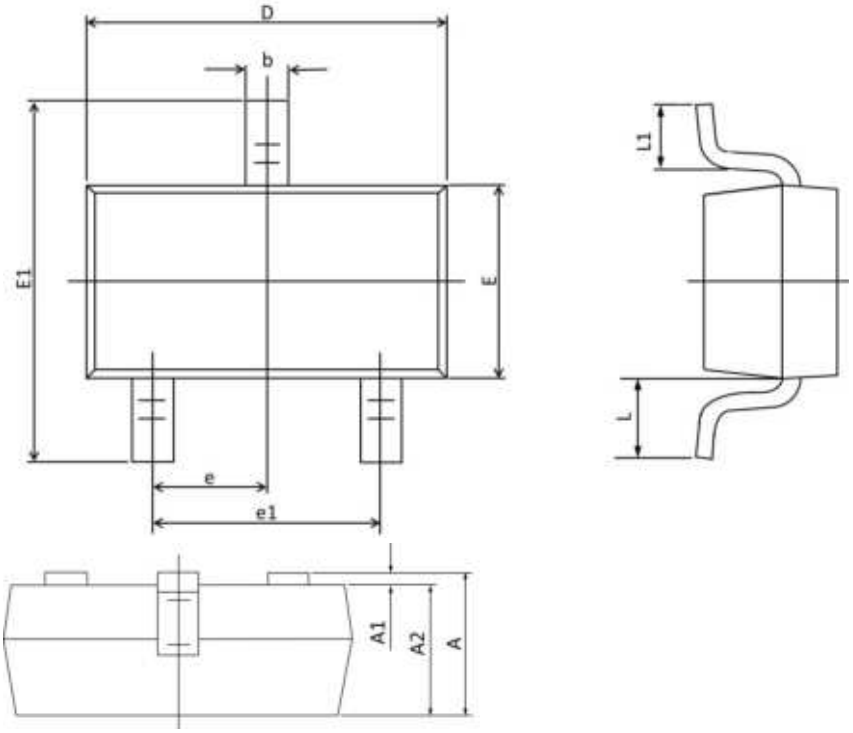


Figure 6. Threshold Voltage

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