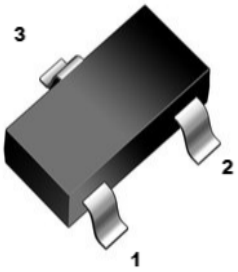
BSS84

50V P-Channel MOSFET

1.Features

SOT-23

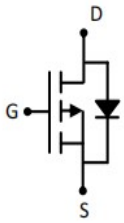
- Trench Technology MOSFET
- Low Gate Charge



2.Mechanical Data

- Case:Molded Plastic,SOT-23
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Marking:B84
- Mounting Position : Any.

1.Gate
2. Source
3. Drain



3.Maximum Ratings and Electrical Characteristics

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Characteristics	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous[1]	I_D	-0.13	A
Drain Current – Pulsed[2]	I_{DM}	-1.2	A
Maximum Power Dissipation[4]	P_D	300	mW
Thermal Resistance, Junction-to-Ambient[5]	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	-55 ~ +150	°C
Storage Temperature	T_{stg}	-55 ~ +150	°C

4.Electrical Characteristics(T_C=25℃ unless otherwise specified)

Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
Static Characteristics						
Drain -Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}= 0V,I_D=-250μA	-50	-	-	V
Gate-source threshold voltage[3]	$V_{GS(th)}$	V_{DS} =V_{GS},I_D=-250μA	-0.9	-1.4	-2	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}= -50V,V_{GS}= 0V	-	-	-1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= ±20V,V_{DS}= 0V	-	-	±100	nA
Static Drain- Source On State Resistance[3]	$R_{DS(on)}$	V_{GS}=-10V，I_D=-0.1A	-	1.7	5	Ω
		V_{GS}=-4.5V，I_D=-0.1A	-	1.9	6	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} =-25V,V_{GS} =0V,f =1MHz	-	32.9	-	pF
Output Capacitance	C_{oss}		-	5.48	-	
Reverse Transfer Capacitance	C_{rss}		-	3.31	-	
Gate Resistance	R_g	V_{DS}=-0V,V_{GS} =-0V,f =1MHz	-	73	-	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	R_L=110Ω, V_{DD}=-30V, V_{GS}=-10V,R_G=50Ω	-	11	-	ns
Turn-on Rise Time	t_r		-	6	-	
Turn-off Delay Time	$t_{d(off)}$		-	19	-	
Turn-off Fail Time	t_f		-	8	-	
Total Gate Charge	Q_g	V_{DS} =-10V,V_{GS} =-10V,I_D =-0.1A	-	0.62	-	nc
Gate-Source Charge	Q_{gs}		-	0.13	-	
Gate-Drain Charge	Q_{gd}		-	0.11	-	
Source-drain diode characteristics and maximum ratings						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = -0.1A	-	-	-1.2	V

Notes:

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

4.The power dissipation PD is limited by TJ(MAX) = 150°C.

5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C

5.Rating And Characteristic Curves

Fig.1 Output Characteristics

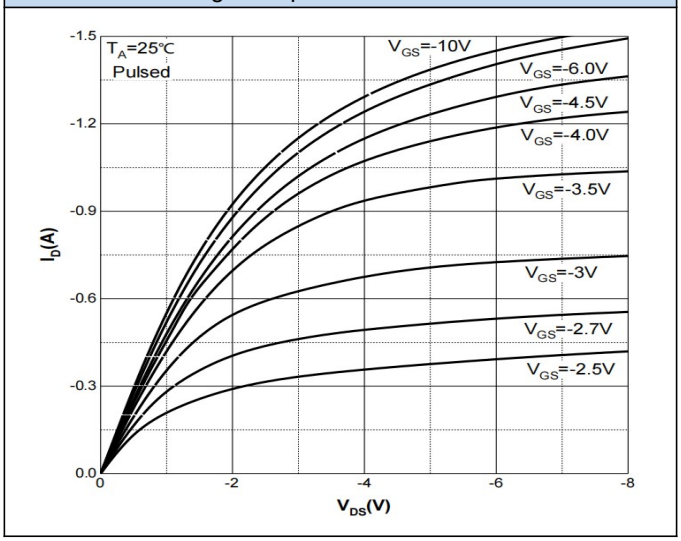


Fig.2 Transfer Characteristics

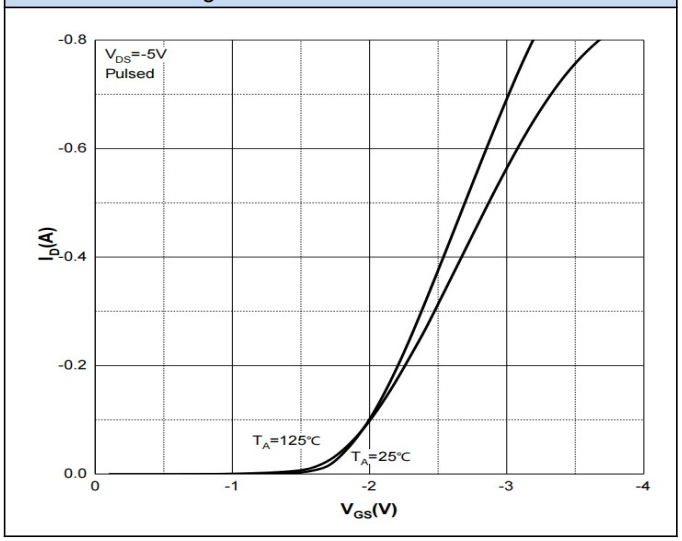


Fig.3 On-resistance vs.Drain Current

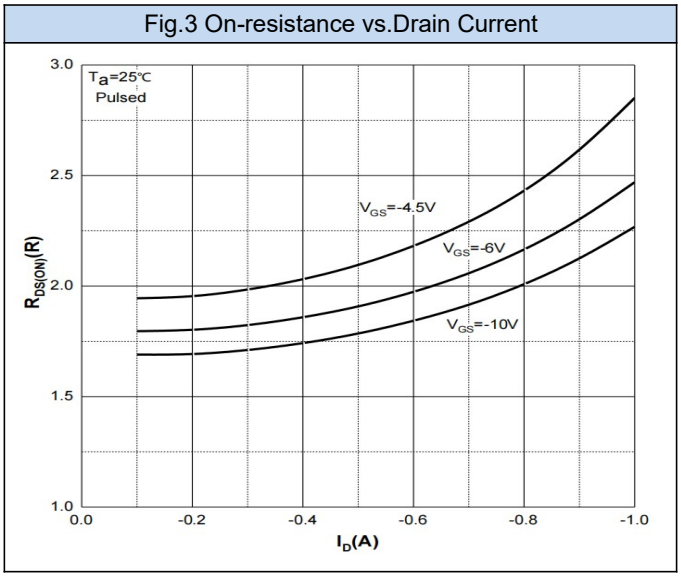


Fig.4 On-resistance vs. Gate-source Voltage

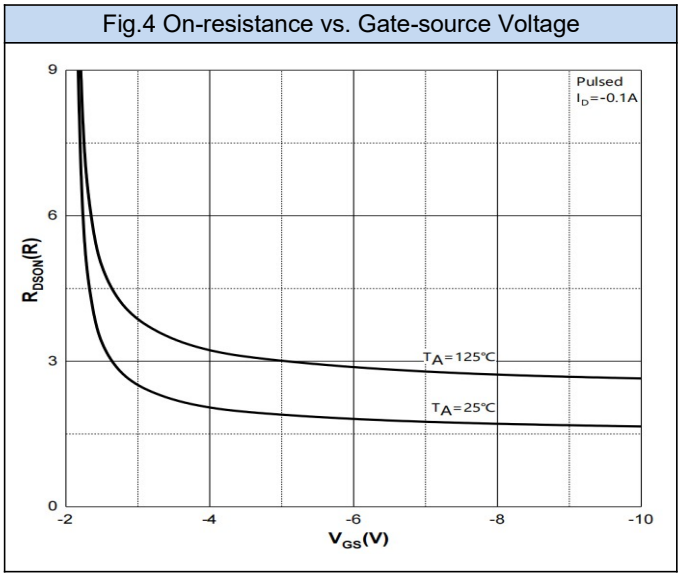


Fig.5 I_S vs. V_{DS}

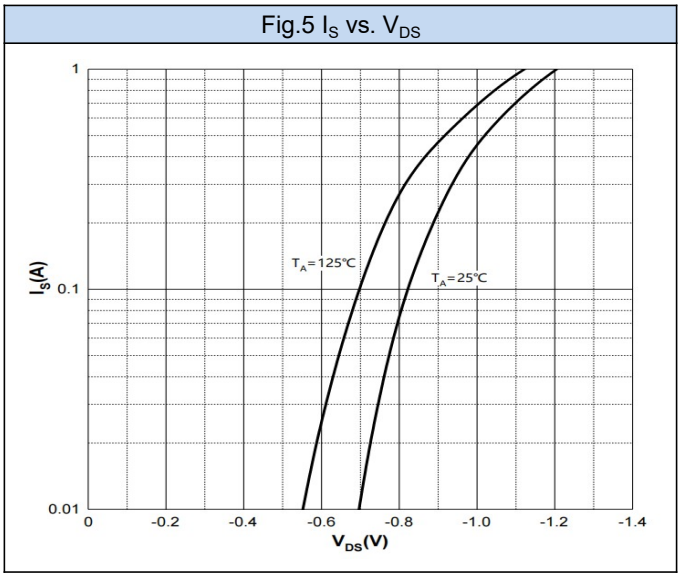
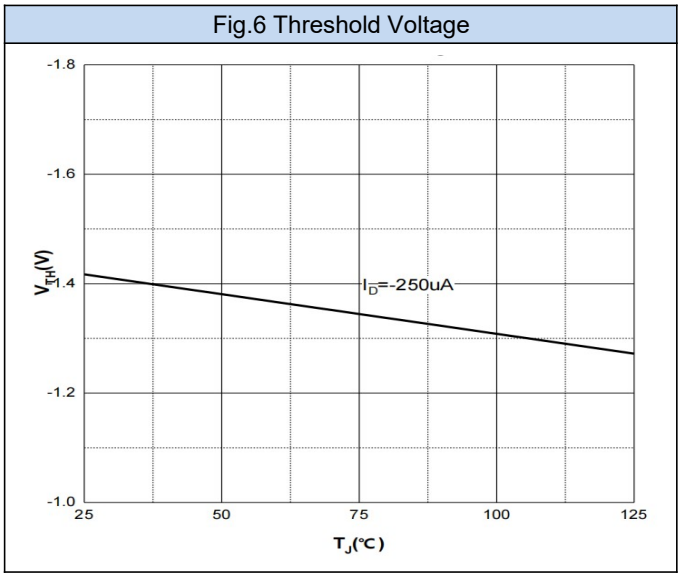
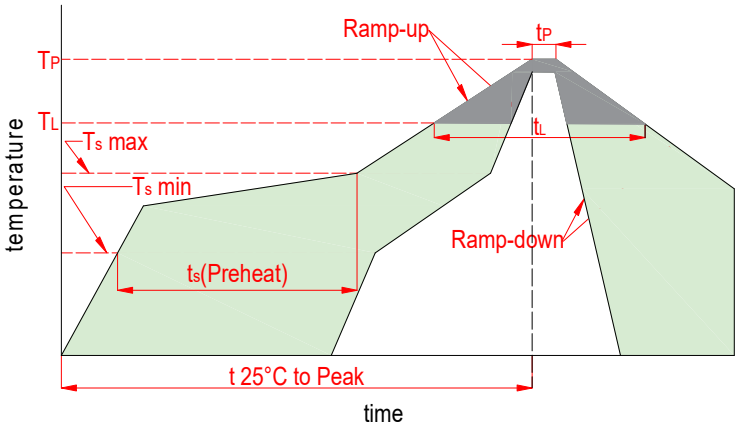


Fig.6 Threshold Voltage

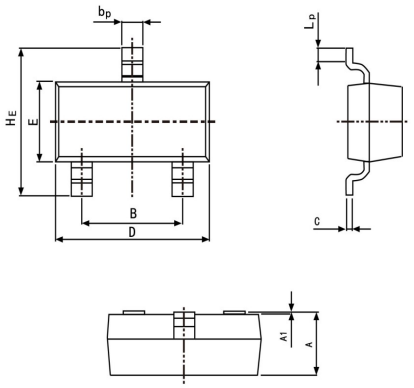


6. Soldering Parameters



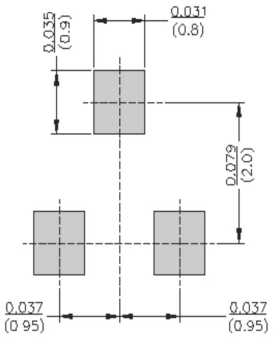
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s(min))	150℃
	Temp. max(T_s(min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_S(max) to T_L-Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		$260^{+0/-5}$℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃

7. Dimensions

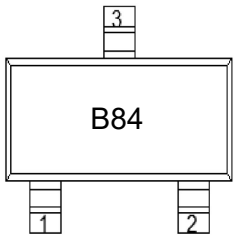


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23	BSS84	8	3000

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