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

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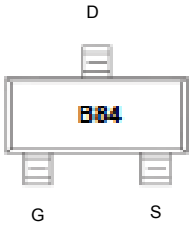
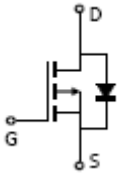


Marking and Pin Assignment



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for DC-DC converter, power management in portable battery, computer, printer, cellular and general purpose applications
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The BSS84 utilizes the latest processing techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in DC-DC converter, power management in portable battery, computer, printer, cellular and general purpose 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 (note 1) @tp <10 μs	I_{DM}	-0.52	A
Power Dissipation	P_D	225	mW
Thermal Resistance from Junction to Ambient (note 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)

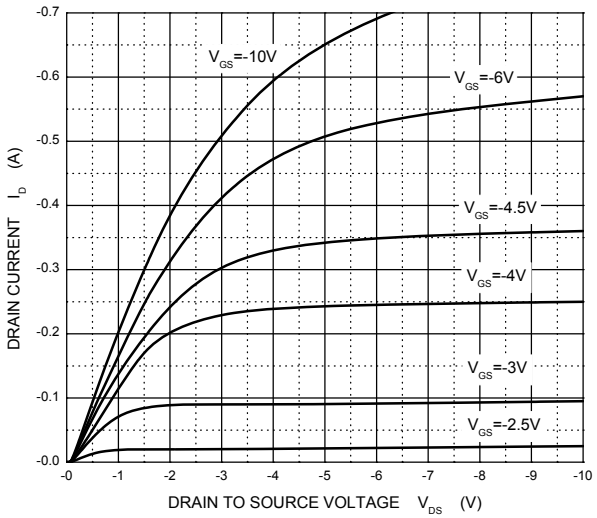
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-50	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-50V,V_{GS} = 0V	-	-	-15	μA
		V_{DS} =-25V,V_{GS} = 0V	-	-	-0.1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±5	μA
Gate Threshold Voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-0.9	-	-2	V
Drain-Source On-Resistance (note 3)	$R_{DS(on)}$	V_{GS} =-5V, I_D =-0.1A	-	-	10	Ω
		V_{GS} =-10V, I_D =-0.1A	-	-	8	Ω
Forward Transconductance (note 1)	g_{FS}	V_{DS}=-25V; I_D=-100mA	50	-	-	mS
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	V_{DS} =5V,V_{GS} =0V,f =1MHz	-	30	-	pF
Output Capacitance	C_{oss}		-	10	-	pF
Reverse Transfer Capacitance	C_{rss}		-	5	-	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, R_L=50Ω, I_D =-2.5A	-	2.5	-	ns
Turn-on Rise Time	t_r		-	1	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	16	-	ns
Turn-off Fall Time	t_f		-	8	-	ns
SOURCE−DRAIN DIODE CHARACTERISTICS						
Continuous Current	I_S		-	-	-0.13	A
Pulsed Current	I_{SM}		-	-	-0.52	A
Diode Forward Voltage (note 3)	V_{SD}	I_S=-0.13A, V_{GS} = 0V	-	-	-2.2	V

Notes :

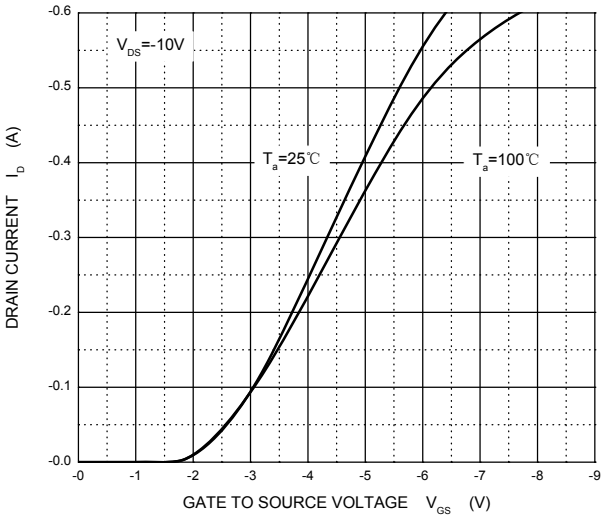
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.

Typical Electrical and Thermal Characteristics

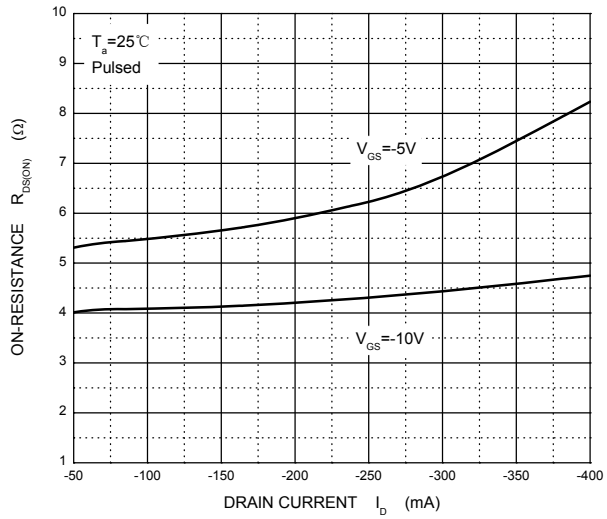
Output Characteristics



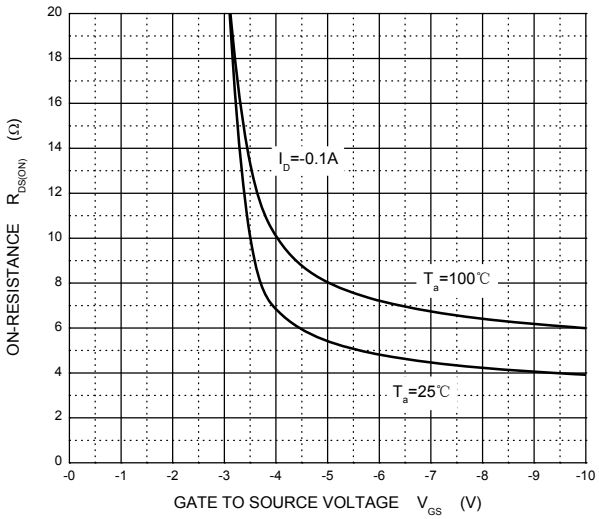
Transfer Characteristics



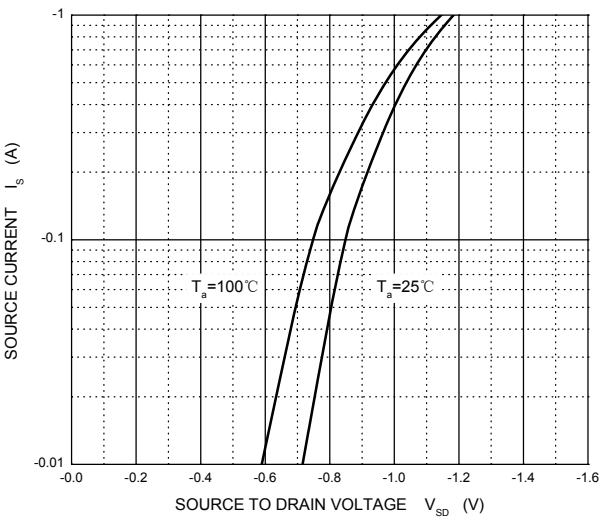
$R_{DS(ON)}$ — I_D



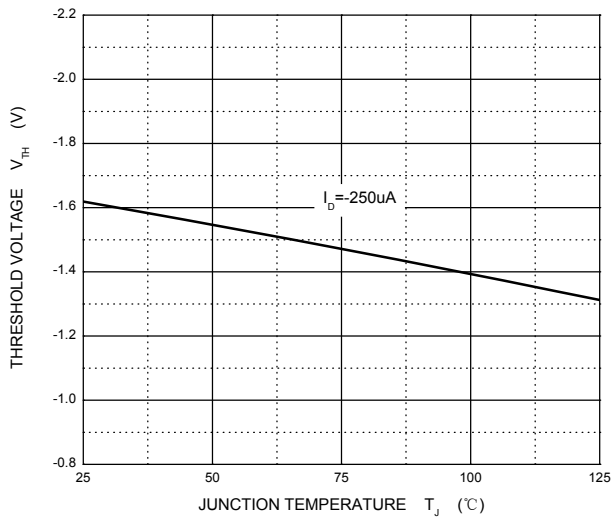
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



Package Outline Dimensions

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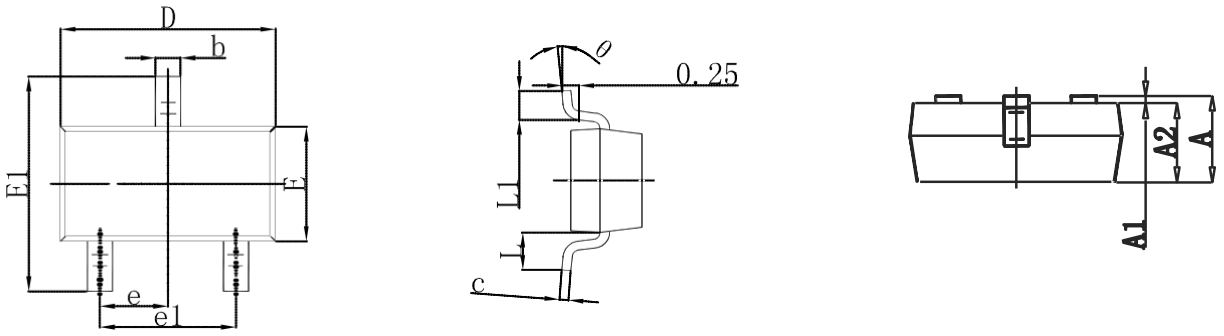
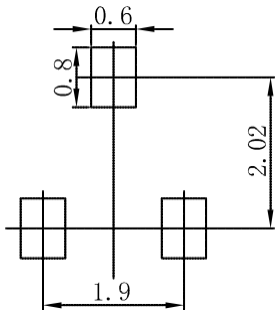


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.