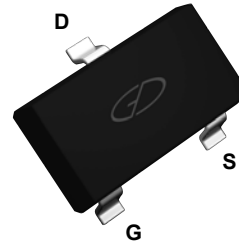
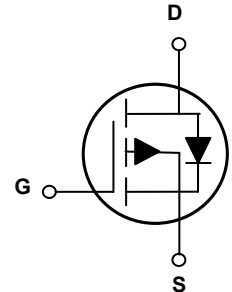


Main Product Characteristics

$V_{(BR)DSS}$	-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 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 ($T_A=25^\circ\text{C}$ 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)

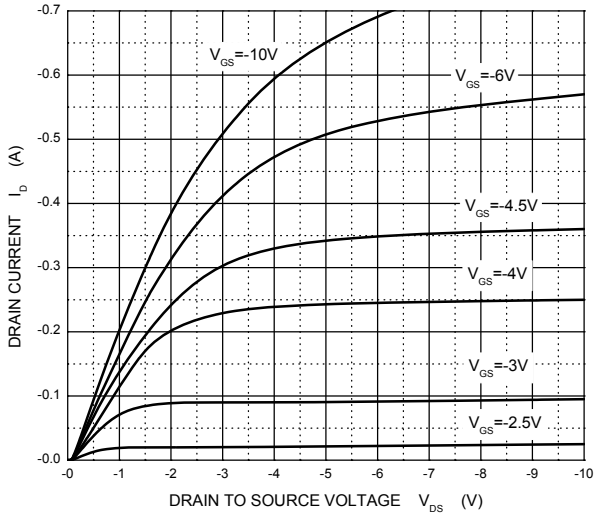
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-50	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -50V, V _{GS} = 0V	-	-	-15	μA
		V _{DS} = -25V, V _{GS} = 0V	-	-	-0.1	μA
Gate-Body Leakage 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 :

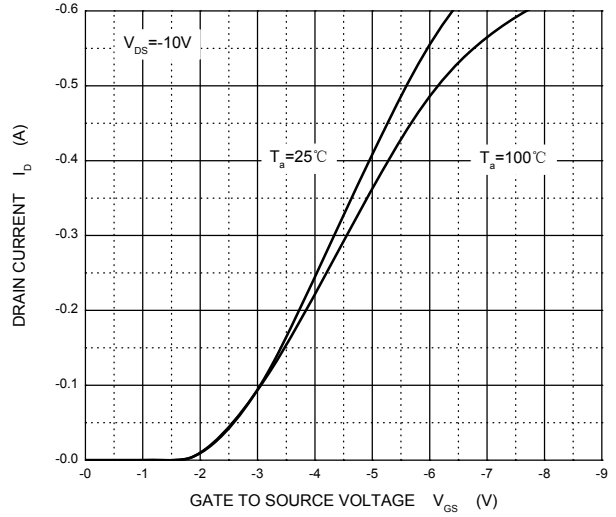
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t_s≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.

Typical Electrical and Thermal Characteristics

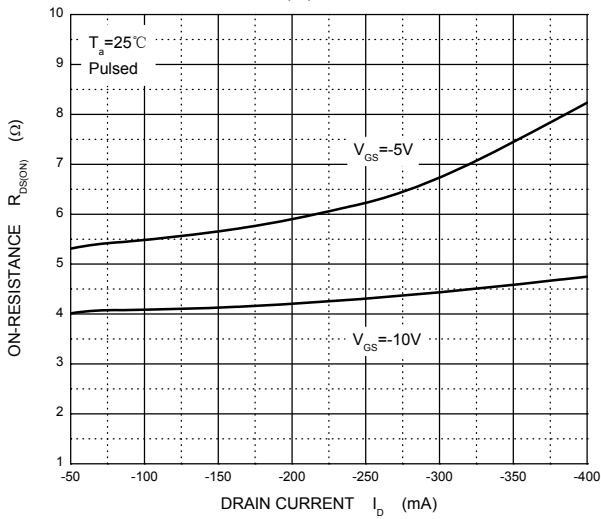
Output Characteristics



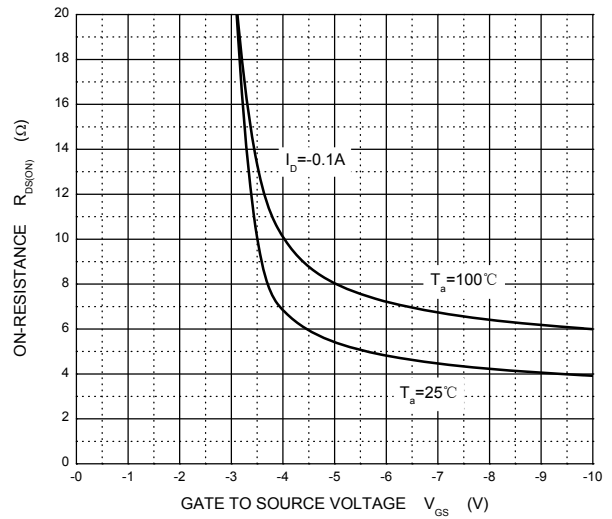
Transfer Characteristics



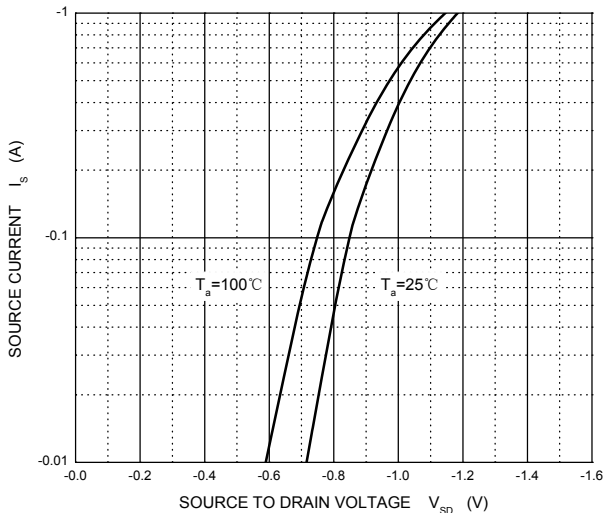
$R_{DS(ON)}$ — I_D



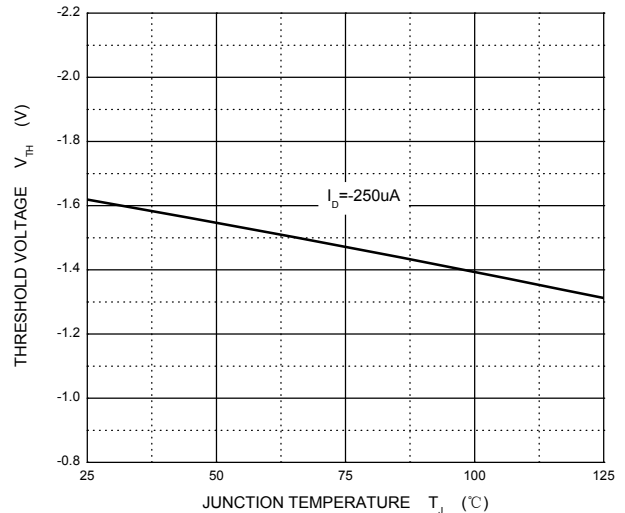
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

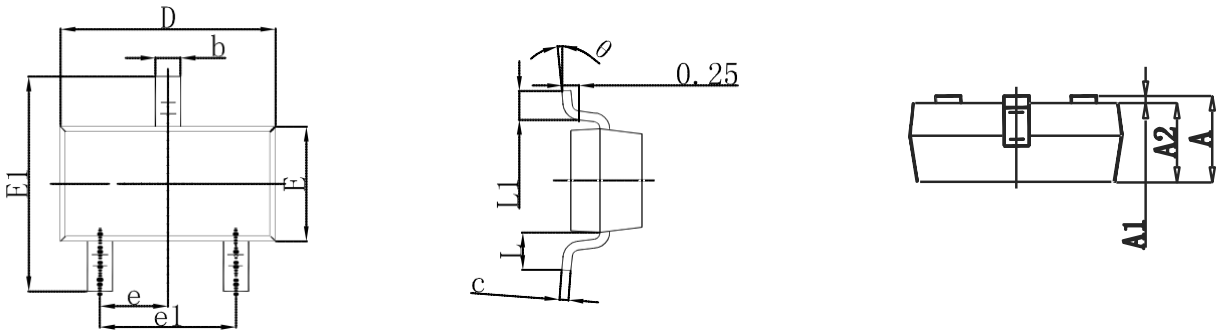


Threshold Voltage



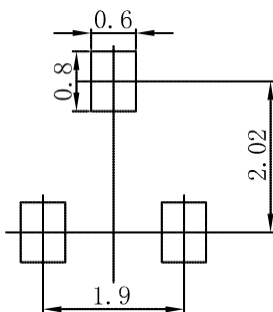
Package Outline Dimensions

SOT-23



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: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.