SOT-23 Plastic-Encapsulate MOSFETs

BSS84   P-CHANNEL MOSFET

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

SOT-23

1. GATE
2. SOURCE
3. DRAIN
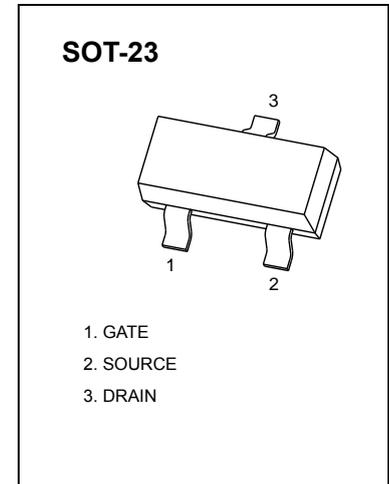
DESCRIPTION

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry.

FEATURE

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space

APPLICATION

- DC−DC converters,load switching, power management in portable and battery−powered products such as computers, printers, cellular and cordless telephones.

MARKING

B84

Equivalent Circuit
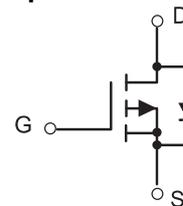
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

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)	$R_{θJA}$	556	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	T_L	260	℃

MOSFET ELECTRICAL CHARACTERISTICS

T_a=25 ℃ 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	-1.6	-2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	V_{GS} =-5V, I_D =-0.1A		5.8	10	Ω
		V_{GS} =-10V, I_D =-0.1A		4.5	8	Ω
Forward transconductance (note 1)	g_{FS}	V_{DS}=-25V; I_D=-100mA	50			mS
DYNAMIC CHARACTERISTICS (note 4)						
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 (note 4)						
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%.

4. Guaranteed by design, not subject to producting.

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Typical Characteristics

Output Characteristics

V_{GS}=-10V

V_{GS}=-6V

V_{GS}=-4.5V

V_{GS}=-4V

V_{GS}=-3V

V_{GS}=-2.5V

DRAIN CURRENT I_D (A)

DRAIN TO SOURCE VOLTAGE V_{DS} (V)
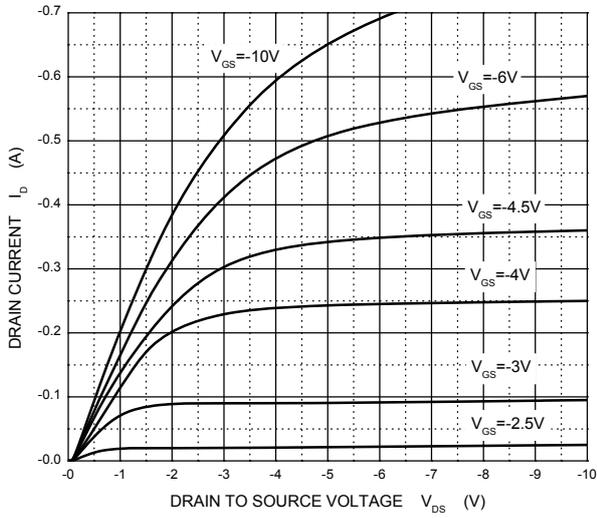
Transfer Characteristics

V_{DS}=-10V

T_a=25℃

T_a=100℃

DRAIN CURRENT I_D (A)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)}$ —— I_D

T_a=25℃
Pulsed

V_{GS}=-5V

V_{GS}=-10V

ON-RESISTANCE $R_{DS(ON)}$ (Ω)

DRAIN CURRENT I_D (mA)

$R_{DS(ON)}$ —— V_{GS}

I_D=-0.1A

T_a=100℃

T_a=25℃

ON-RESISTANCE $R_{DS(ON)}$ (Ω)

GATE TO SOURCE VOLTAGE V_{GS} (V)

I_S —— V_{SD}

T_a=100℃

T_a=25℃

SOURCE CURRENT I_S (A)

SOURCE TO DRAIN VOLTAGE V_{SD} (V)

Threshold Voltage

I_D=-250uA

THRESHOLD VOLTAGE V_{TH} (V)

JUNCTION TEMPERATURE T_J (℃)
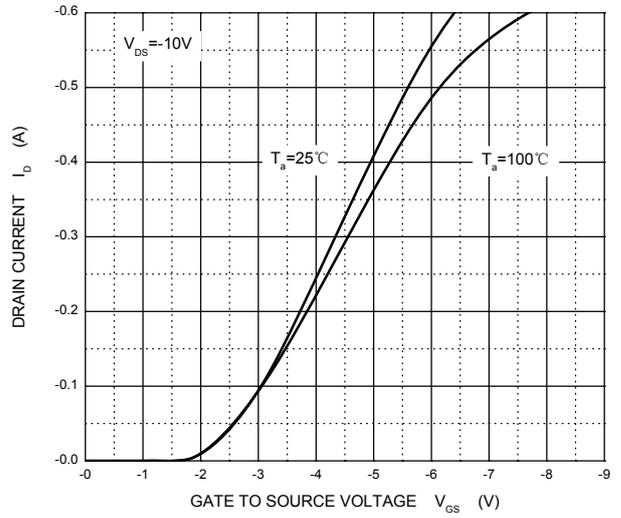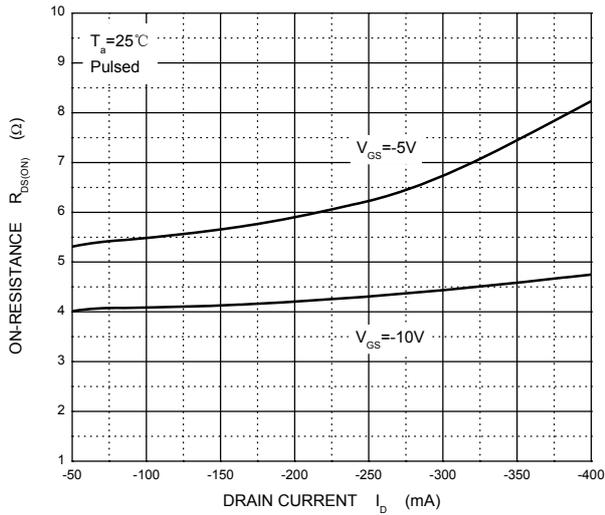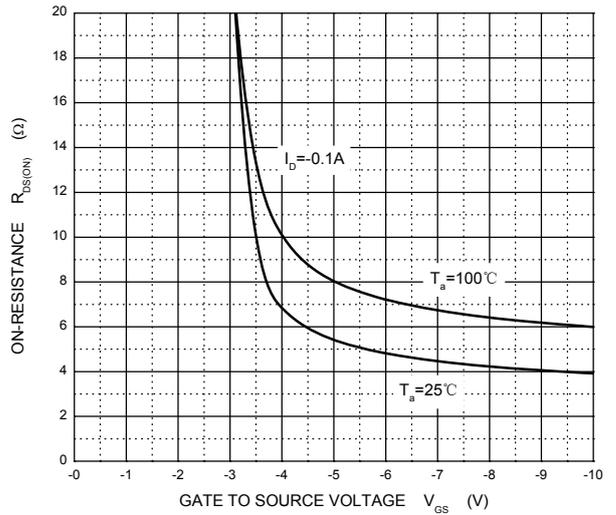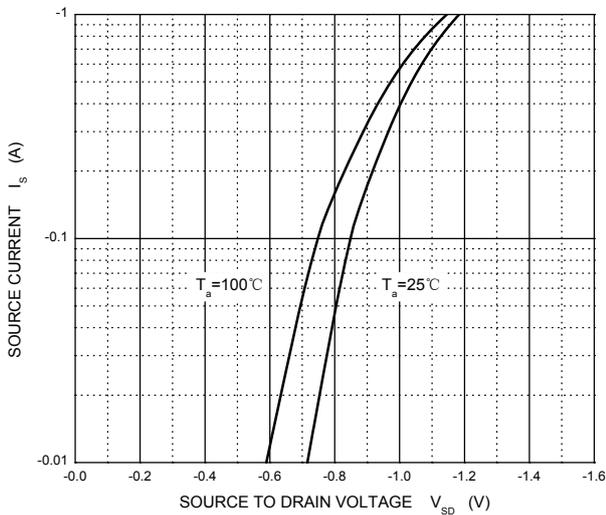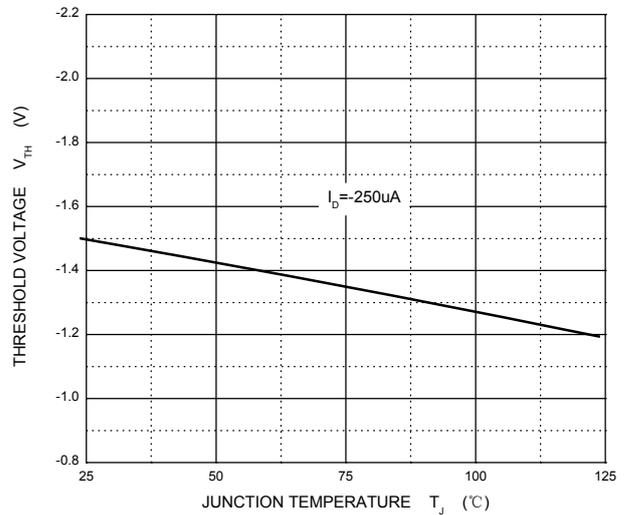
PACKAGE OUTLINE

Plastic surface mounted package; 3 leads   **SOT-23**
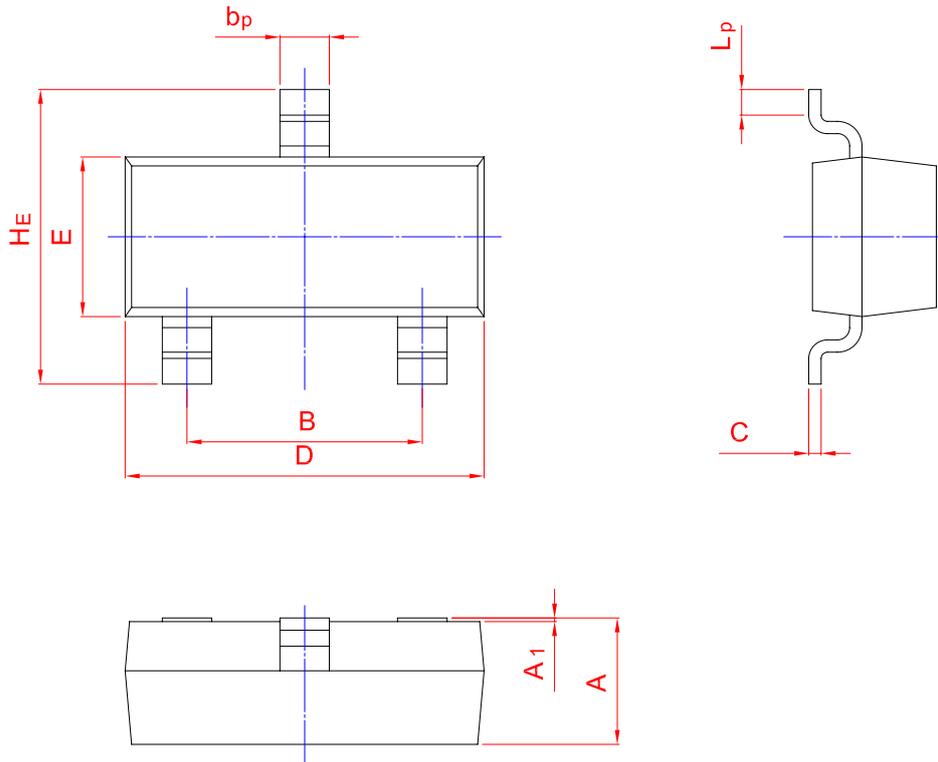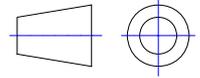
UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20