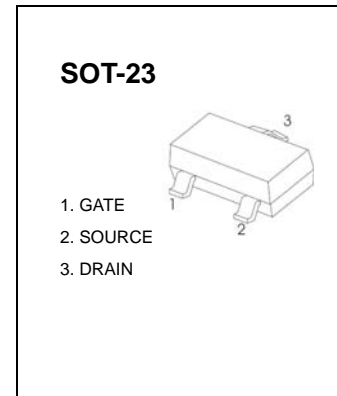


## SOT-23 Plastic-Encapsulate MOSFETS

### **BSS84 P-CHANNEL MOSFET**

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



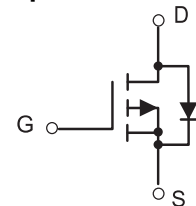
#### DESCRIPTION

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

#### Equivalent Circuit



#### APPLICATION

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

#### MARKING: PD

#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ 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)	$R_{\theta JA}$	556	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55~+150	°C
Maximum Lead Temperature for Soldering Purposes , Duration for 5 Seconds	$T_L$	260	°C

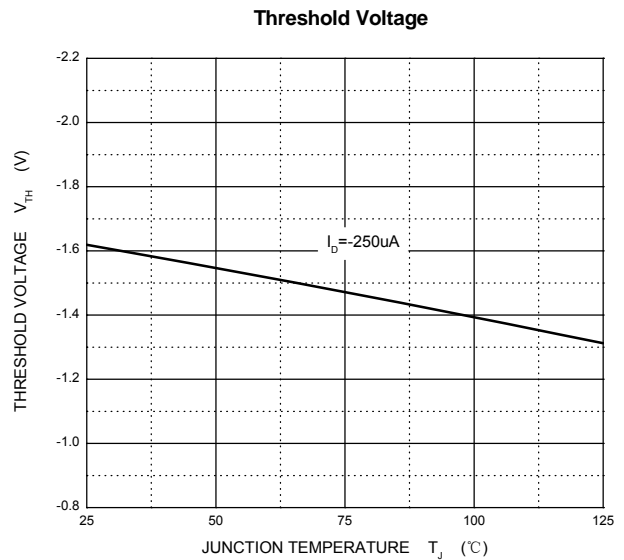
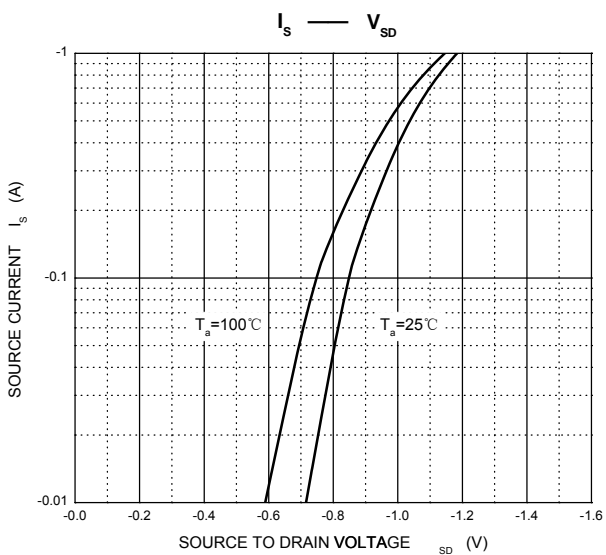
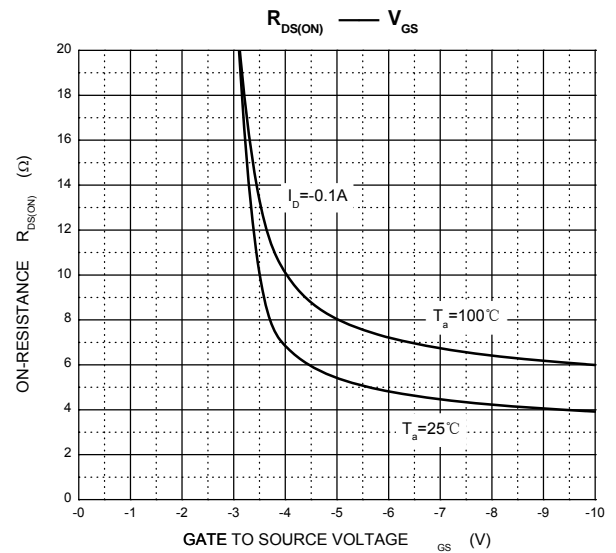
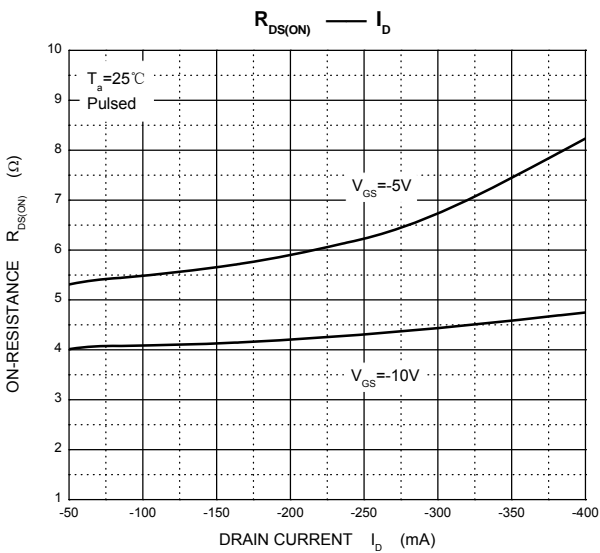
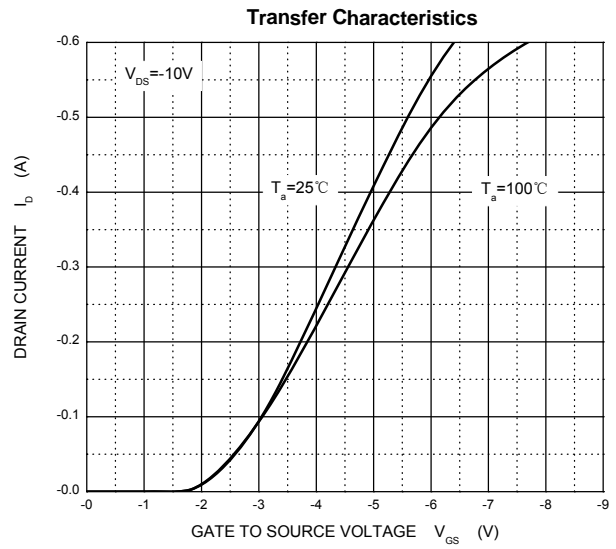
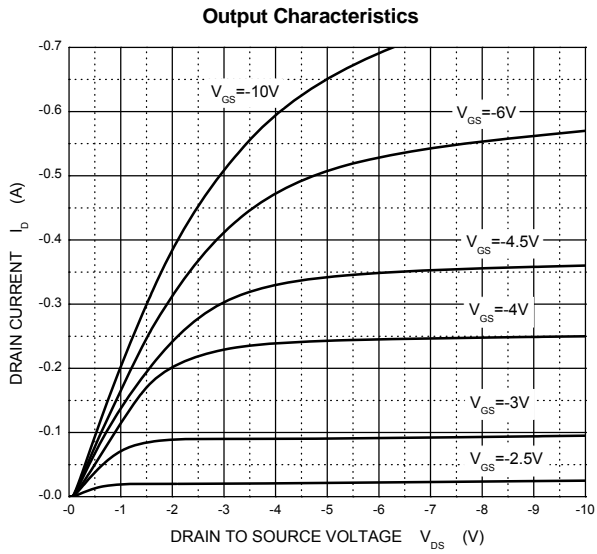
**MOSFET ELECTRICAL CHARACTERISTICS  $T_a=25^\circ\text{C}$  unless otherwise specified**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-50			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -50V, V_{GS} = 0V$			-15	$\mu A$
		$V_{DS} = -25V, V_{GS} = 0V$			-0.1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 5$	$\mu A$
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-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	$\Omega$
		$V_{GS} = -10V, I_D = -0.1A$		4.5	8	$\Omega$
Forward transconductance (note 1)	$g_{FS}$	$V_{DS} = -25V; I_D = -100mA$	50			mS
<b>DYNAMIC CHARACTERISTICS (note 4)</b>						
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
<b>SWITCHING CHARACTERISTICS (note 4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V,$ $R_L = 50\Omega, I_D = -2.5A$		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
<b>SOURCE-DRAIN DIODE CHARACTERISTICS</b>						
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 ,  $t \leq 10s$ .
3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to producing.

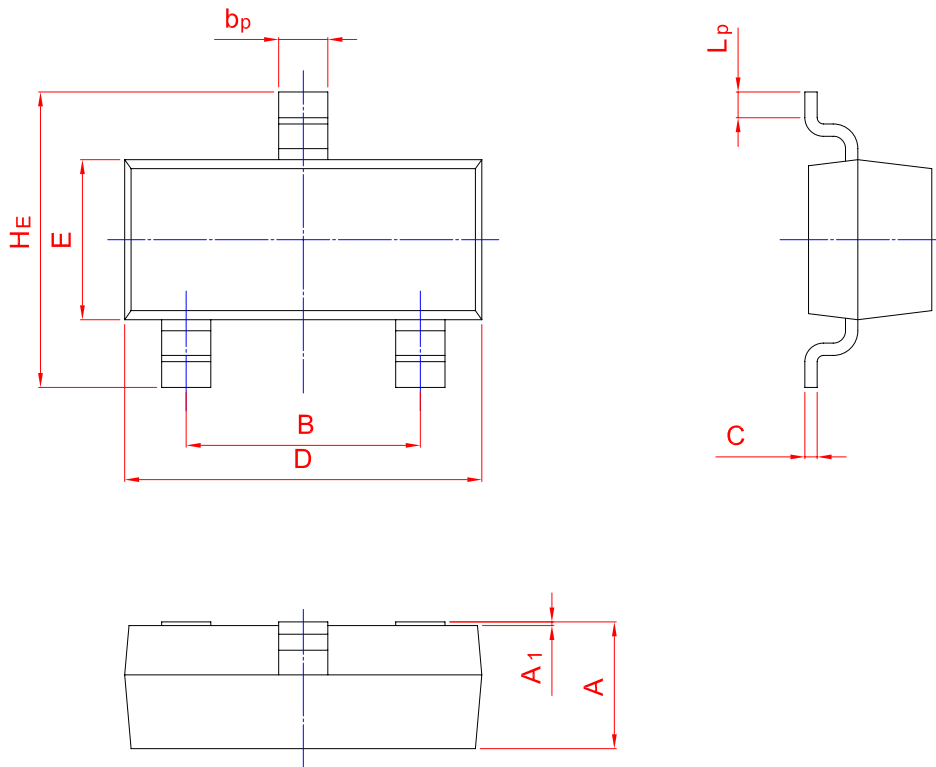
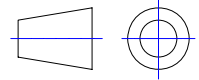
**Typical Characteristics**



**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