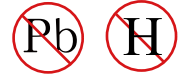




# P-Channel Enhancement MOSFET



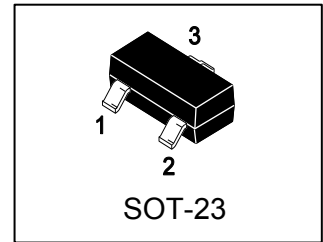
VDS= -50V, ID= -130mA

## FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- Energy Efficient

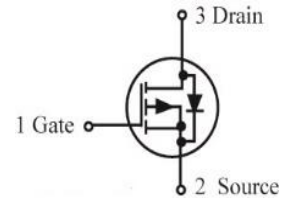
## MARKING

PD



## PACKAGE INFORMATION

Package	Shipping
SOT-23	3000/Tape&Reel



## MAXIMUM RATINGS (T<sub>J</sub> = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>	-50	V <sub>dc</sub>
Gate-to-Source Voltage – Continuous	V <sub>GS</sub>	± 20	V <sub>dc</sub>
Drain Current			mA
– Continuous @ T <sub>A</sub> = 25°C	I <sub>D</sub>	-130	
– Pulsed Drain Current (t <sub>p</sub> ≤ 10 μs)	I <sub>DM</sub>	-520	
Total Power Dissipation @ T <sub>A</sub> = 25°C	P <sub>D</sub>	225	mW
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	- 55 to 150	°C
Thermal Resistance – Junction-to-Ambient	R <sub>θJA</sub>	556	°C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T <sub>L</sub>	260	°C

# DEVICE CHARACTERISTICS

## BSS84

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ( $V_{GS} = 0 \text{ Vdc}$ , $I_D = -250 \mu\text{Adc}$ )	$V_{(BR)DSS}$	-50	-	-	Vdc
Zero Gate Voltage Drain Current ( $V_{DS} = -25 \text{ Vdc}$ , $V_{GS} = 0 \text{ Vdc}$ ) ( $V_{DS} = -50 \text{ Vdc}$ , $V_{GS} = 0 \text{ Vdc}$ ) ( $V_{DS} = -50 \text{ Vdc}$ , $V_{GS} = 0 \text{ Vdc}$ , $T_J = 125^\circ\text{C}$ )	$I_{DSS}$	-	-	-0.1 -15 -60	$\mu\text{Adc}$
Gate-Body Leakage Current ( $V_{GS} = \pm 20 \text{ Vdc}$ , $V_{DS} = 0 \text{ Vdc}$ )	$I_{GSS}$	-	-	$\pm 10$	$\mu\text{Adc}$

#### ON CHARACTERISTICS (Note 1.)

Gate-Source Threaded Voltage ( $V_{DS} = V_{GS}$ , $I_D = -1.0 \text{ mAdc}$ )	$V_{GS(th)}$	-0.8	-	-2.0	Vdc
Static Drain-to-Source On-Resistance ( $V_{GS} = -5.0 \text{ Vdc}$ , $I_D = -100 \text{ mAdc}$ )	$r_{DS(on)}$	-	5.0	10	Ohms
Transfer Admittance ( $V_{DS} = -25 \text{ Vdc}$ , $I_D = 100 \text{ mAdc}$ , $f = 1.0 \text{ kHz}$ )	$ y_{fs} $	50	-	-	mS

#### DYNAMIC CHARACTERISTICS

Input Capacitance	( $V_{DS} = -5.0 \text{ Vdc}$ )	$C_{iss}$	-	30	-	pF
Output Capacitance	( $V_{DS} = -5.0 \text{ Vdc}$ )	$C_{oss}$	-	10	-	
Transfer Capacitance	( $V_{DG} = -5.0 \text{ Vdc}$ )	$C_{rss}$	-	5.0	-	

#### SWITCHING CHARACTERISTICS (Note 2.)

Turn-On Delay Time	$(V_{DD} = -15 \text{ Vdc}$ , $I_D = -2.5 \text{ Adc}$ , $R_L = 50 \Omega$ )	$t_{d(on)}$	-	2.5	-	ns
Rise Time		$t_r$	-	1.0	-	
Turn-Off Delay Time		$t_{d(off)}$	-	16	-	
Fall Time		$t_f$	-	8.0	-	

#### SOURCE-DRAIN DIODE CHARACTERISTICS

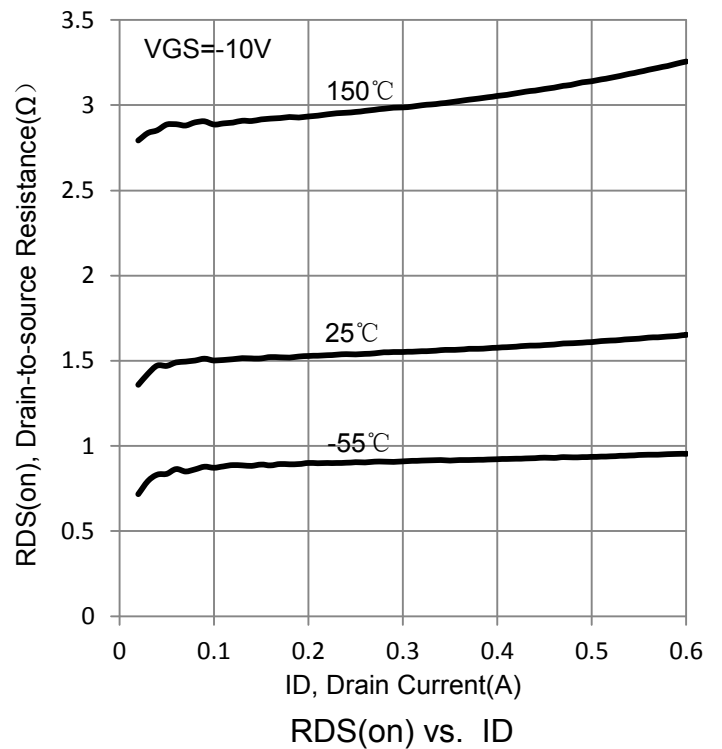
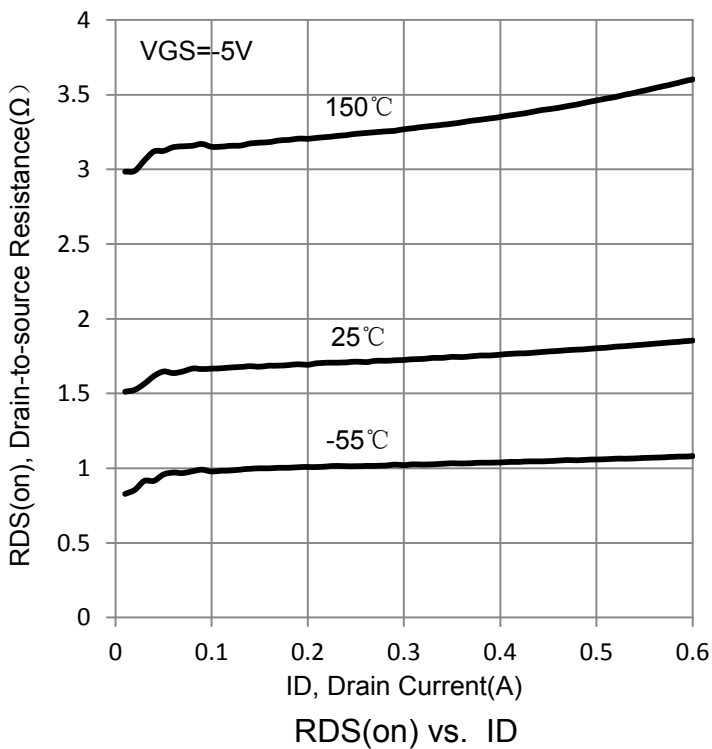
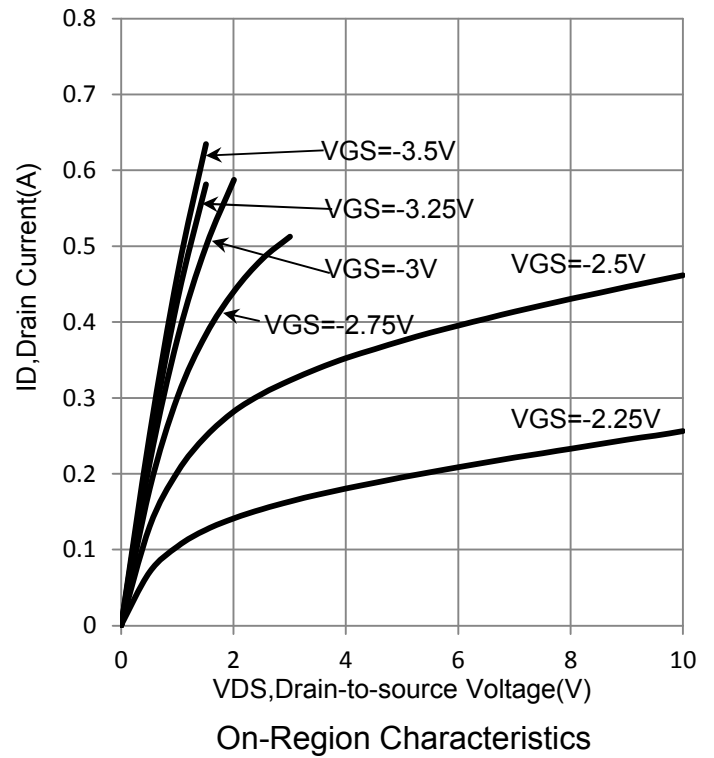
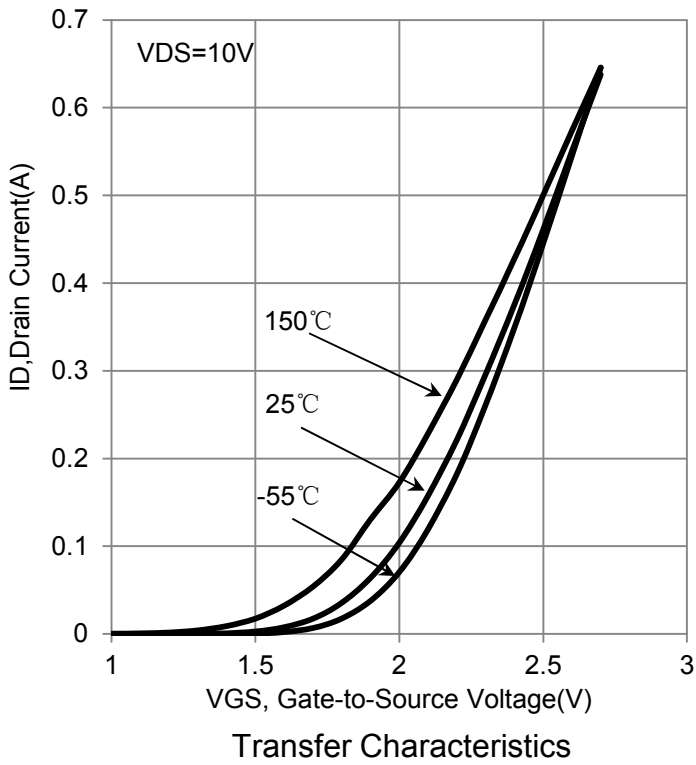
Continuous Current	$I_S$	-	-	-0.130	A
Pulsed Current	$I_{SM}$	-	-	-0.520	
Forward Voltage (Note 2.)	$V_{SD}$	-	-2.5	-	V

1. Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
2. Switching characteristics are independent of operating junction temperature.

# DEVICE CHARACTERISTICS

## BSS84

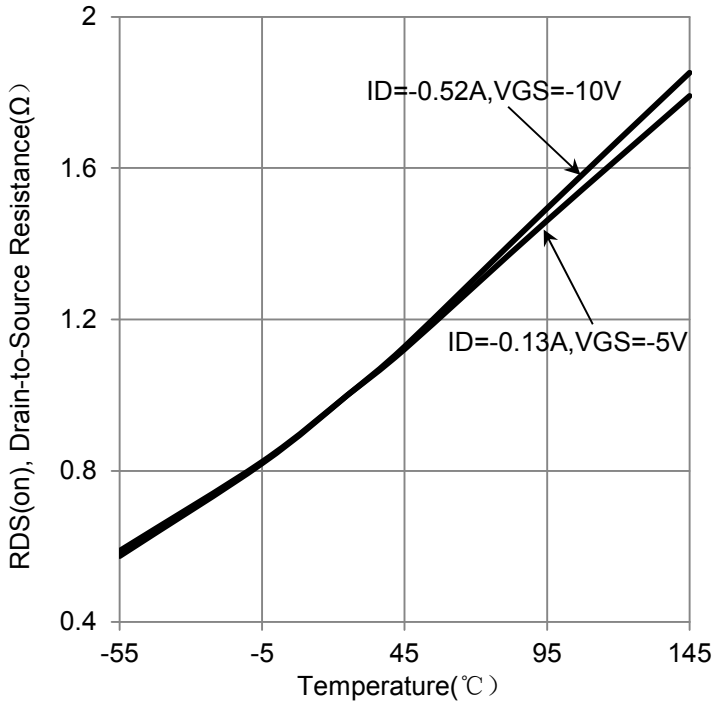
### TYPICAL ELECTRICAL CHARACTERISTICS



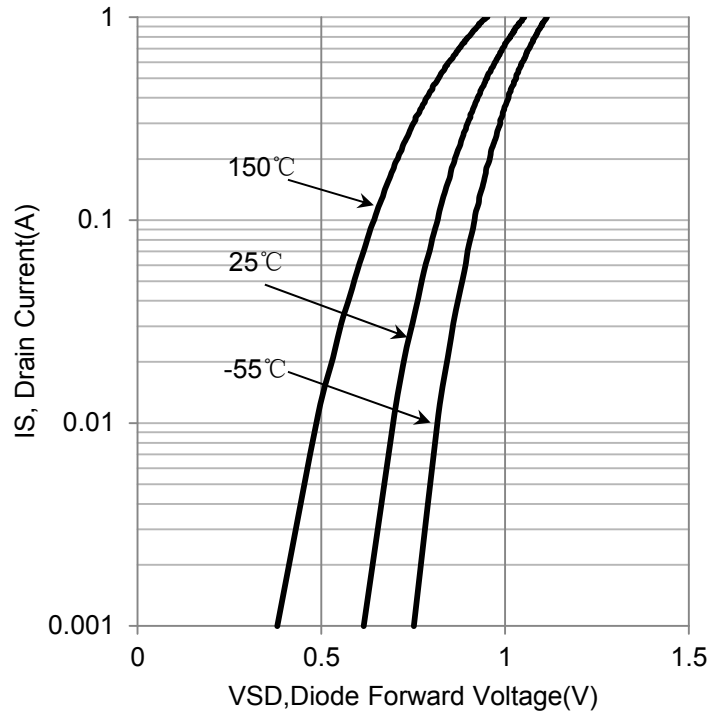
# DEVICE CHARACTERISTICS

## BSS84

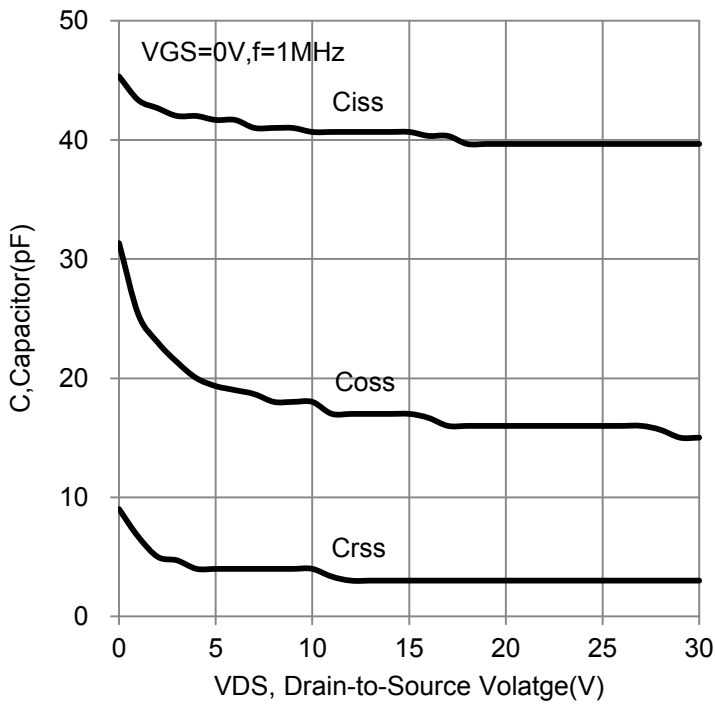
### TYPICAL ELECTRICAL CHARACTERISTICS



RDS(on) vs. Temperature



IS vs. VSD



Capacitor vs. VDS

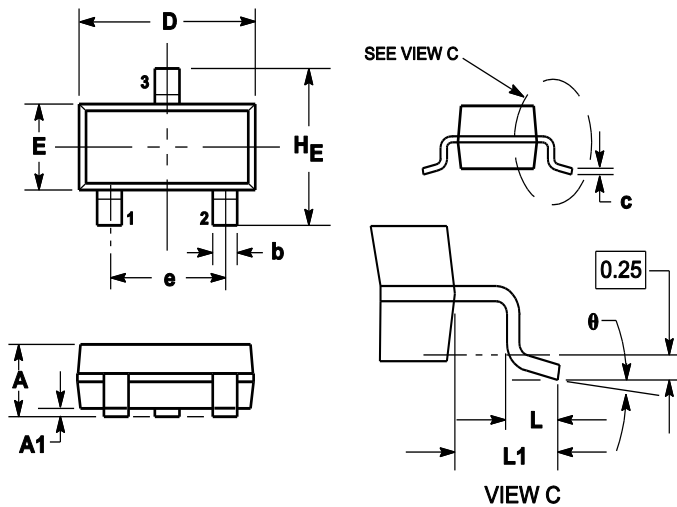
# PACKAGE OUTLINE & DIMENSIONS

## BSS84

### OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
$\theta$	0°	---	10°	0°	---	10°

### SOLDERING FOOTPRINT

