

## SOT-363 Plastic-Encapsulate MOSFETs

### BSS84DW P-CHANNEL MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-5V	1Ω@-10V	-0.3A
	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

#### APPLICATION

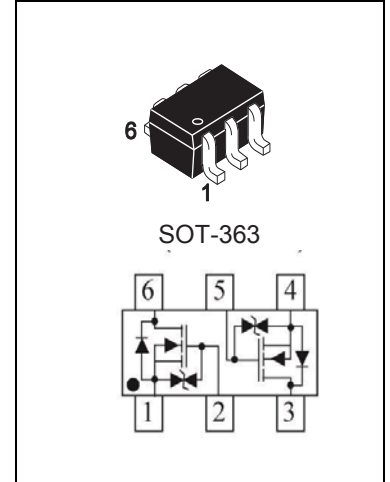
- DC-DC converters, load switching, power management in portable and battery-powered products such as computers, printers, cellular and cordless telephones.

#### MARKING

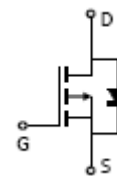


#### MAXIMUM RATINGS ( $T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-5V	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	0.3	A
Pulsed Drain Current (note 1) @tp < 10 μs	$I_{DM}$	0.7	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



#### Equivalent Circuit



# MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25^\circ\text{C}$  unless otherwise specified

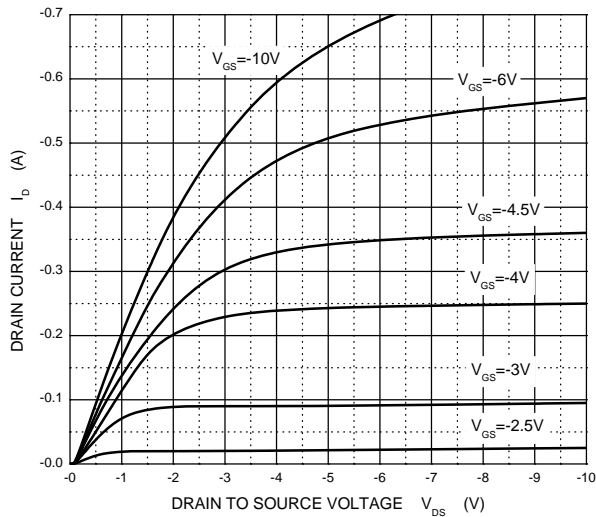
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-5			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -5V, V_{GS} = 0V$			-15	$\mu A$
		$V_{DS} = -25V, V_{GS} = 0V$			-0.1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 5$	$\mu A$
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.5			V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = -5V, I_D = -0.1A$			1.5	$\Omega$
		$V_{GS} = -10V, I_D = -0.1A$			1.5	$\Omega$
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	$I_S$				0.3	A
Pulsed Current	$I_{SM}$				-0.52	A
Diode forward voltage (note 3)	$V_{SD}$	$I_S = -0.3A, V_{GS} = 0V$			-2.2	V

## Notes :

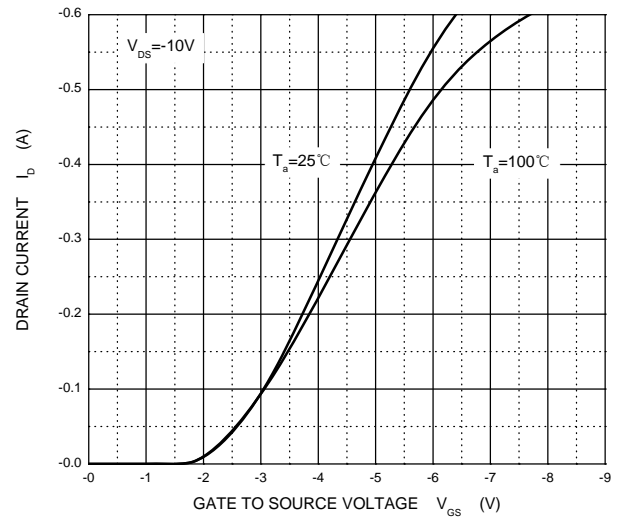
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board ,  $t \leq 10s$ .
3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
4. Guaranteed by design, not subject to producing.

# Typical Characteristics

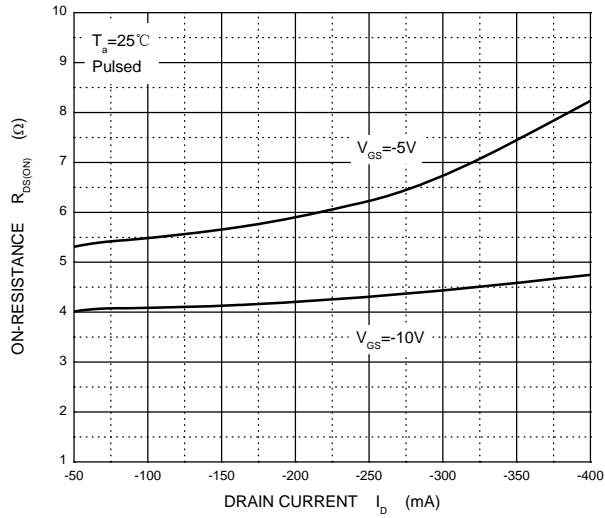
### Output Characteristics



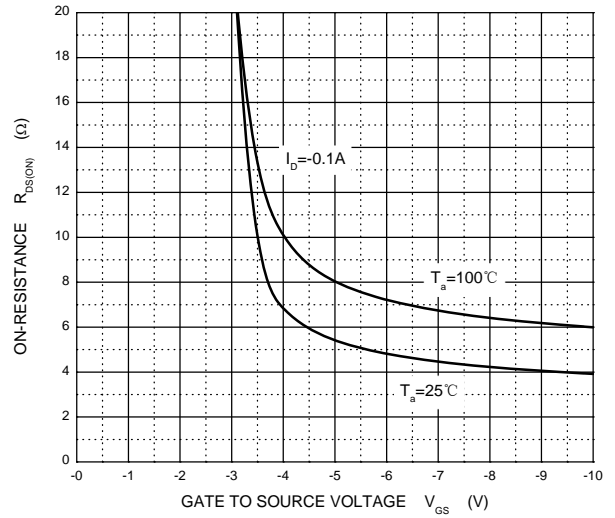
### Transfer Characteristics



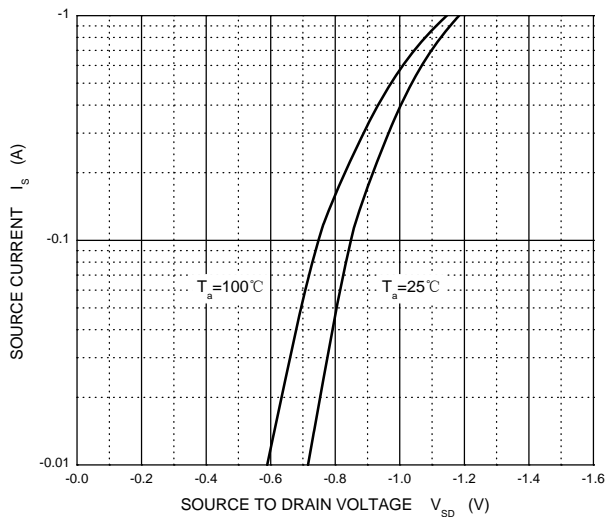
### $R_{DS(ON)}$ — $I_D$



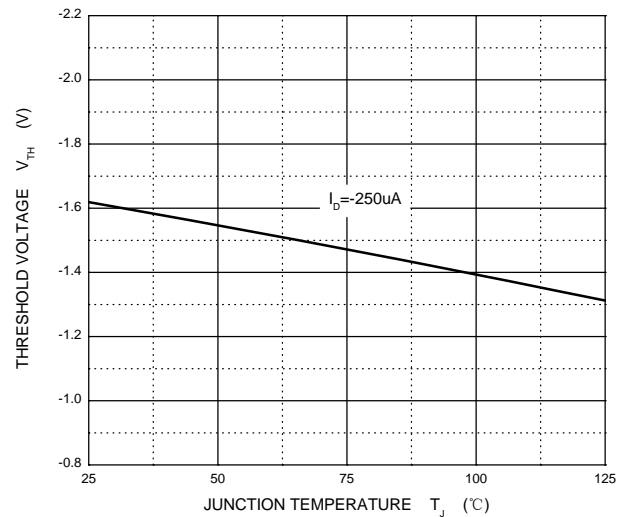
### $R_{DS(ON)}$ — $V_{GS}$



### $I_S$ — $V_{SD}$



### Threshold Voltage

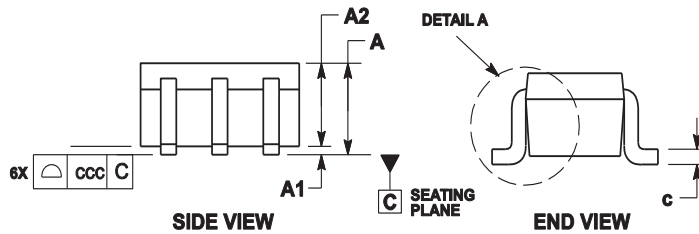
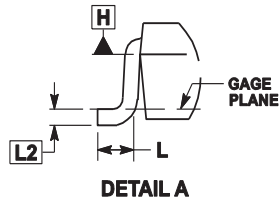
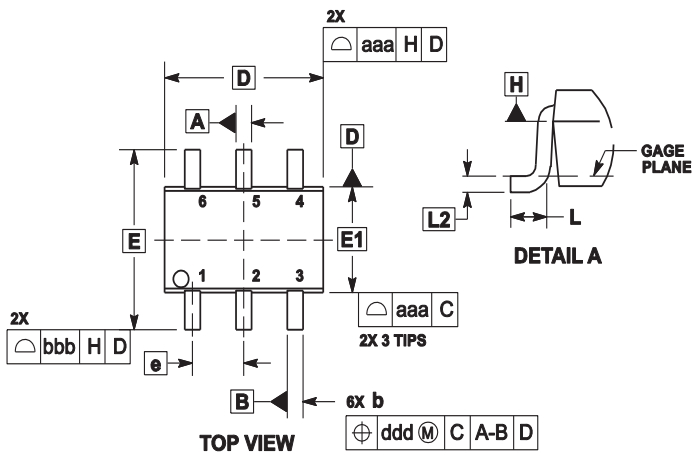


# SOT-363 Package Outline Dimensions

## 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 E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	1.10	---	---	0.043
A1	0.00	---	0.10	0	---	0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.01
C	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.07	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			0.006 BSC		
aaa	0.15			0.01		
bbb	0.30			0.01		
ccc	0.10			0.00		
ddd	0.10			0.00		

## SOLDERING FOOTPRINT

