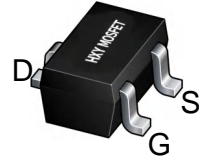




## Description

The BSS209PW uses advanced trench technology to provide excellent  $R_{DS(ON)}$ . This device is suitable for use as a load switch or in PWM applications.



**SOT-323**

## General Features

$V_{DS} = -20V, I_D = -1.8A$

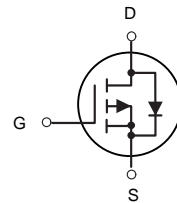
$R_{DS(ON)} < 150m\Omega @ V_{GS} = -4.5V$

## Application

Battery protection

Load switch

Uninterruptible power supply



P-Channel MOSFET

## Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
BSS209PW	SOT-323	HXY MOSFET	3000

## Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	-20	V
$V_{GS}$	Gate-Source Voltage	±8	V
$I_D$	Drain Current-Continuous	-1.8	A
$I_{DM}$	Drain Current-Pulsed <sup>(Note 1)</sup>	-3	A
$P_D$	Maximum Power Dissipation	0.29	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup>	431	°C/W



**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

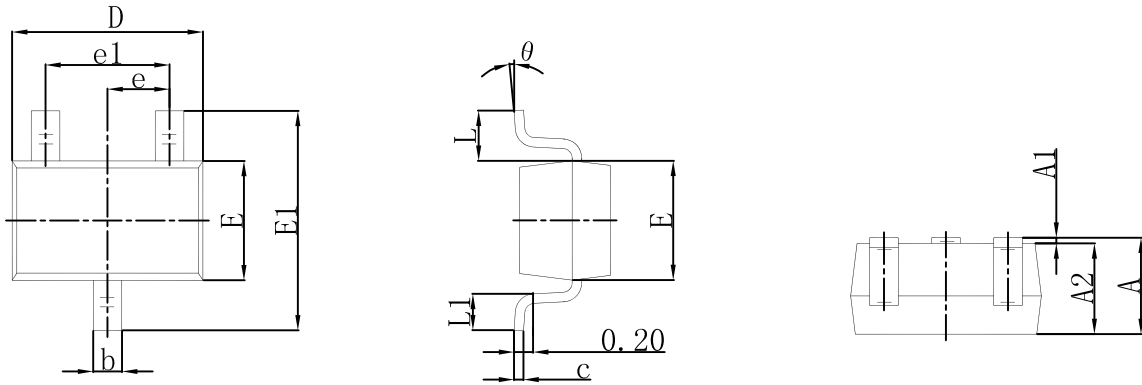
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTIC</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -18V, V_{GS} = 0V$			-1	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
Gate threshold voltage <small>(note2)</small>	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.7	-1.0	V
Drain-source on-resistance <small>(note2)</small>	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2A$			150	m $\Omega$
		$V_{GS} = -2.5V, I_D = -1.0A$			230	m $\Omega$
Maximum Continuous Drain to Source Diode Forward Current	$I_S$	--			-1.0	A
Diode forward voltage	$V_{SD}$	$I_S = -1.0A, V_{GS} = 0V$			-1.2	V
<b>DYNAMIC CHARACTERISTICS <small>(note3)</small></b>						
Input capacitance	$C_{iss}$	$V_{DS} = -8V, V_{GS} = 0V,$ $f = 1MHz$			680	pF
Output capacitance	$C_{oss}$				130	pF
Reverse transfer capacitance	$C_{rss}$				95	pF
<b>SWITCHING CHARACTERISTICS <small>(note3)</small></b>						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -1.0A, R_G = 5.1\Omega$			10	nS
Turn-on rise time	$t_r$				20	nS
Turn-off delay time	$t_{d(off)}$				35	nS
Turn-off fall time	$t_f$				18	nS

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300 $\mu s$ , Duty Cycle=2%.
3. These parameters have no way to verify.



### SOT-323 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
K	0°	8°	0°	8°



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