

BSS123

100V N Channel
Advanced Power MOSFET

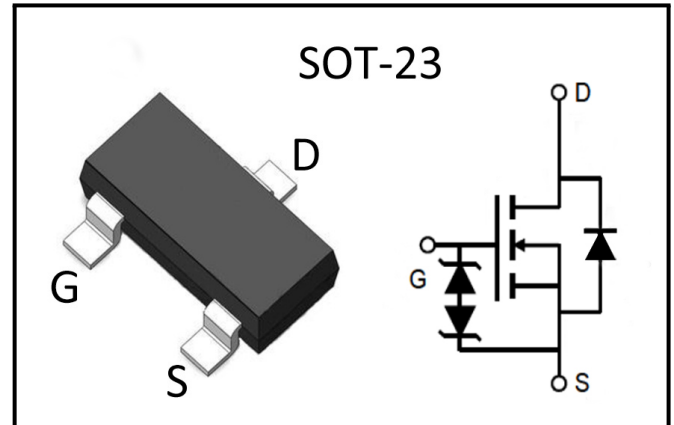
Features

- $V_{DS}=100V$
- $I_D=0.2A$
- $R_{DS(ON)} @ V_{GS}=10V, TYP=2.2\Omega$
- $R_{DS(ON)} @ V_{GS}=4.5V, TYP=2.5\Omega$

Applications

- Relay Driver
- ON/OFF Switch
- High-speed line Driver
- Power Management in Portable and Battery etc.

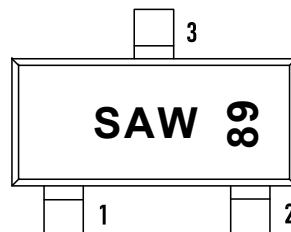
Package



General Description

- Advanced trench process technology
- Pb-Free, RoHS Compliant
- High Density Cell Design For Ultra Low On-Resistance
- SOT-23 for Surface Mount Package.
- ESD Protection

Marking



Ordering information

Order code	Package	Marking	Base qty	Delivery mode
BSS123	SOT-23	SAW89	3K	Tape and reel



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Absolute Maximum Ratings (@T_A=25°C unless otherwise noted)

Symbol	Parameter		Value	Unit
V _{(BR)DSS}	Drain-Source Voltage		100	V
V _{GS}	Gate-Source Voltage		±20	V
I _D	Continuous Drain Current(V _{GS} =4.5V)	T _A =25°C	0.2	A
		T _A =70°C	0.15	
I _{DM}	Pulsed Drain Current ⁽¹⁾	T _A =25°C	0.8	A
P _D	Maximum Power Dissipation	T _A =25°C	0.8	W
		T _A =70°C	0.6	
T _J	Operation Junction Temperature		150	°C
T _{stg}	Storage Temperature Range		-55 to +150	°C
R _{θJA}	Thermal Resistance From Junction To Ambient		150	°C/W



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @T _J =25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100	—	—	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V, T _A =25°C	—	—	1	uA
		V _{DS} =80V, V _{GS} =0V, T _A =125°C	—	—	100	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	—	—	±10	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0	1.7	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance ⁽²⁾	V _{GS} =10V, I _D =0.2A	—	2.2	6	Ω
		V _{GS} =4.5V, I _D =0.2A	—	2.5	8	
Dynamic Electrical Characteristics @T _J =25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =50V, V _{GS} =0V, f=1.0MHZ	—	11.5	—	pF
C _{oss}	Output Capacitance		—	2.4	—	
C _{rss}	Reverse Transfer Capacitance ⁽²⁾		—	1.8	—	
Q _g	Total Gate Charge	V _{DS} =50V, V _{GS} =10V, I _D =0.2A	—	0.54	—	nC
Q _{gs}	Gate-Source Charge		—	0.08	—	
Q _{gd}	Gate-Drain Charge		—	0.18	—	
Switching Characteristics @T _J =25°C (unless otherwise stated)						
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, V _{DD} = 50V, I _D =0.2A, R _G =3.3Ω	—	2	—	ns
t _r	Turn-On Rise Time		—	3.1	—	
t _{d(off)}	Turn-Off Delay Time		—	6.5	—	
t _f	Turn-Off Fall Time		—	15	—	
Source Drain Diode Characteristics @T _J =25°C (unless otherwise stated)						
I _{SD}	Source drain current(Body Diode)	T _A =25°C	—	—	0.2	A
V _{SD}	Diode Forward Voltage ⁽²⁾	T _J =25°C, I _{SD} = 0.2A, V _{GS} = 0V	—	0.85	1.2	V

Notes:

(1)Pulse width limited by maximum allowable junction temperature

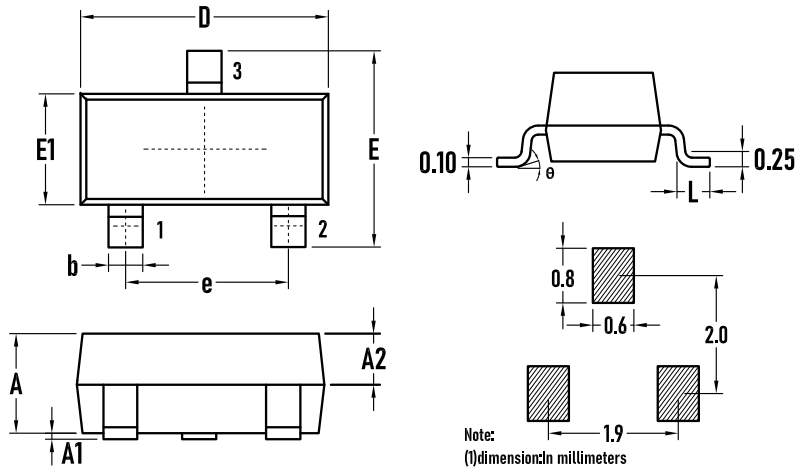
(2)Pulse test:Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.



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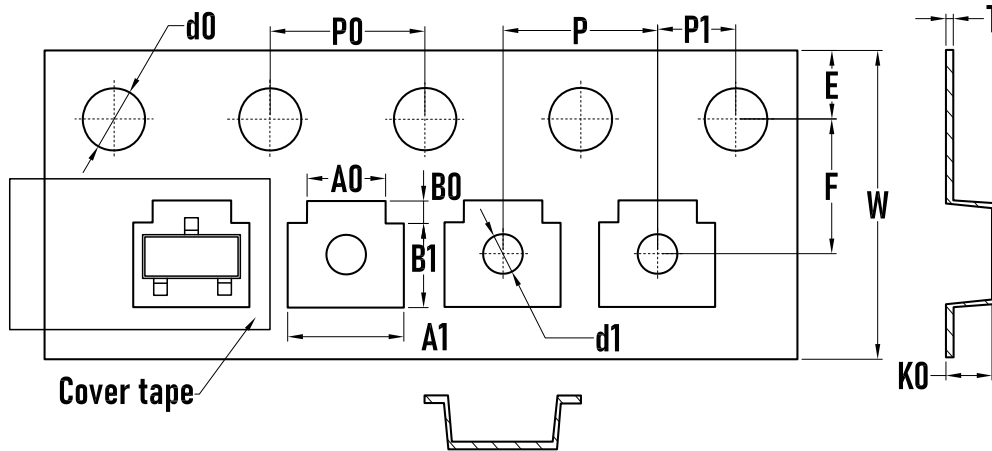
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Outline Drawing - SOT-23



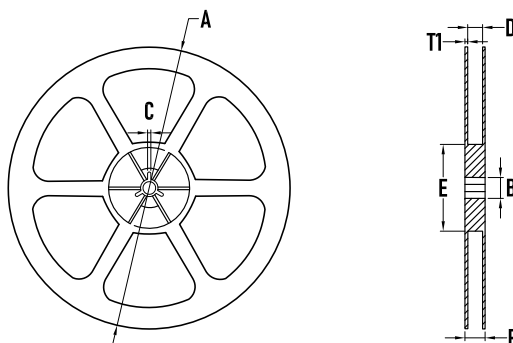
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.90	1.00	1.10
A1	0.01	—	0.10
A2	0.50	0.60	0.70
D	2.80	2.90	3.00
b	0.25	0.35	0.45
E	2.10	2.30	2.50
E1	1.20	1.30	1.40
e	1.80	1.90	2.00
L	0.25	0.35	0.45
θ	0	—	8°

Packaging Tape - SOT-23



SYMBOL	MILLIMETER
A0	2.10±0.10
A1	3.10±0.10
B0	0.65±0.10
B1	2.75±0.10
d0	1.55±0.10
d1	1.00±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.10±0.10
P	4.00±0.10
P0	4.00±0.10
P1	2.00±0.10
W	8.00±0.30
T	0.20 ±0.05

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

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