

**DESCRIPTION**

The BSS126 is available in SOT-23 Package.

VDSS	RDSON	ID
600V	350Ω	0.03A

APPLICATIONS

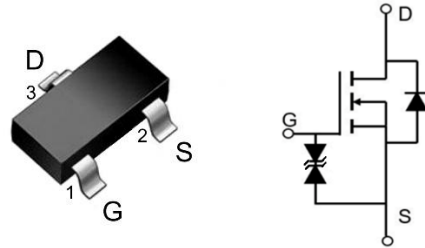
- Load Switch
- PWM Application
- Power Management

ORDERING INFORMATION

Package Type	Part Number
SOT-23	BSS126
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS products	

FEATURE

- 600V, 0.03A
- $R_{DS(ON)}$ Typ.= 350Ω @ $V_{GS} = 10V$
- Halogen and Antimony Free
- Depletion Mode
- ESD Improved Capability

PIN DESCRIPTION

Pin #	Symbol	Function
1	G	Gate
2	S	Source
3	D	Drain

ABSOLUTE MAXIMUM RATINGS

$T_J = 25^\circ\text{C}$, unless otherwise specified.

V_{DS} , Drain-to-Source Voltage		600V
V_{GS} , Gate Source Voltage		$\pm 20V$
I_D , Continuous Drain Current	$T_A = 25^\circ\text{C}$	0.03A
	$T_C = 70^\circ\text{C}$	0.024A
I_{DM} , Pulsed Drain Current ⁽¹⁾		0.12A
P_D , Power Dissipation	$T_C = 25^\circ\text{C}$	0.5W
$R_{\theta JA}$, Thermal Resistance, Junction-to-Ambient ⁽²⁾		250°C/W
Gate Source ESD (HBM-C=100pF, R=1.5kΩ)		300V
T_{STG} , Storage Temperature Range		-55°C ~ +150°C
T_J , Junction Temperature Range		-55°C ~ +150°C

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. $R_{\theta JA}$ is measured with the device mounted on a 1 inch² pad of 2 oz copper FR4 PCB



ELECTRICAL CHARACTERISTICS

T_J = 25°C, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = -5V, I _D = 250μA	600	-	-	V
Off-State Drain to Source Current	I _{D(off)}	V _{DS} =600V, V _{GS} =-5V	-	-	0.1	μA
		V _{DS} =480V, V _{GS} =-5V Ta=125° C			10	
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±10V	-	-	±100	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =3V I _D = 8μA	-2.7	-1.8	-1	V
On-State Drain Current	I _{DSS}	V _{GS} = 0V, V _{DS} =25V	12			mA
Drain-Source ON-Resistance	R _{DS(ON)}	V _{GS} = 0V, I _D = 3mA		350	700	Ω
		V _{GS} = 10V, I _D = 16mA	-	400	800	
Dynamic Characteristics						
Forward Transconductance	g _{ts}	V _{DS} =50V I _D = 0.01A	8	17		mS
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =-5V, f=1MHZ	-	50	-	pF
Output Capacitance	C _{oss}		-	4.53	-	
Reverse Transfer Capacitance	C _{rss}		-	1.08	-	
Total Gate Charge	Q _g	V _{DD} = 400V , I _D =0.01A V _{GS} =-5V ~5V	-	1.14	-	nC
Gate-Source Charge	Q _{gs}		-	0.5	-	
Gate-Drain Charge	Q _{gd}		-	0.37	-	
Switching Characteristic						
Turn-On Delay Time	t _{d(on)}	V _{DD} =300V, I _D = 0.01A R _{GEN} =6Ω, V _{GS} = -5..7V	-	9.9	-	ns
Turn-On Rise Time	t _r		-	55.8	-	
Turn-Off Delay Time	t _{d(off)}		-	56.4	-	
Turn-Off Fall Time	t _f		-	136	-	
Total Gate Charge	Q _g	V _{DD} = 400V , I _D =0.01A V _{GS} =-5V ~5V	-	1.14	-	nC
Gate-Source Charge	Q _{gs}		-	0.5	-	
Gate-Drain Charge	Q _{gd}		-	0.37	-	
Drain-Source Diode Characteristics and Max Ratings						
Diode Forward Current	I _{SD}	T _a =25	-	-	0.025	A
Pulse Diode Forward Current	I _{SM}	T _a =25	-	-	0.1	A
Forward Diode Voltage	V _{SD}	V _{GS} =-5V, I _F = 16mA	-	-	1.2	V
Gate-Source Zener Diode						
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} =±1mA (Open Drain)	20			V



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Maximum Continues Drain vs Case Temperature

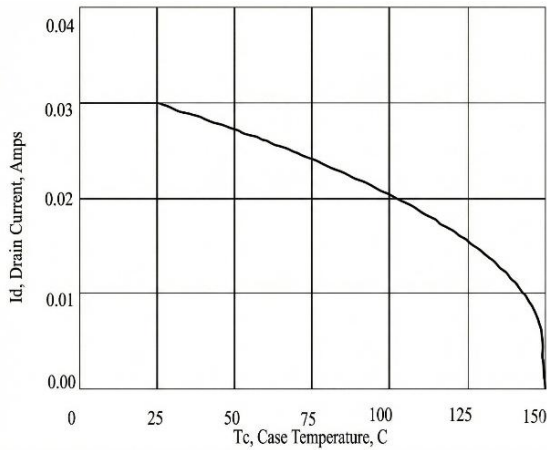


Fig 2. Maximum Power Dissipation vs Case Temperature

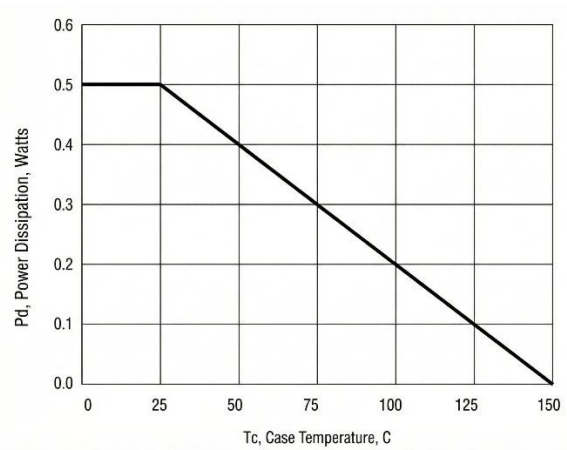


Fig 3. Typical Gate vs Gate to Source Voltage

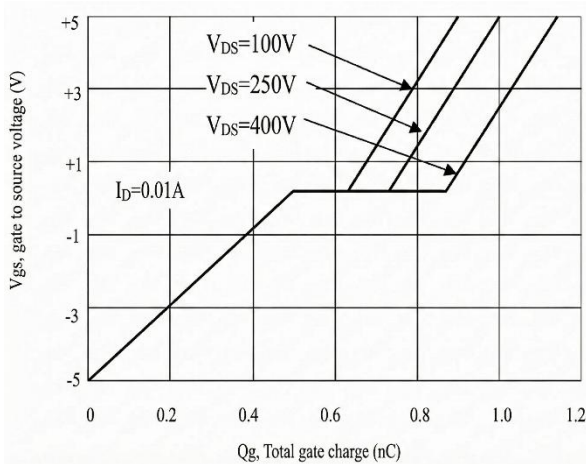


Fig 4. Typical Output Characteristics

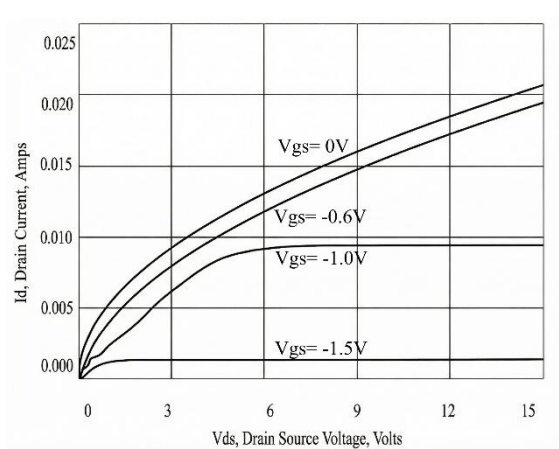


Fig 5. Typical Transfer Characteristics

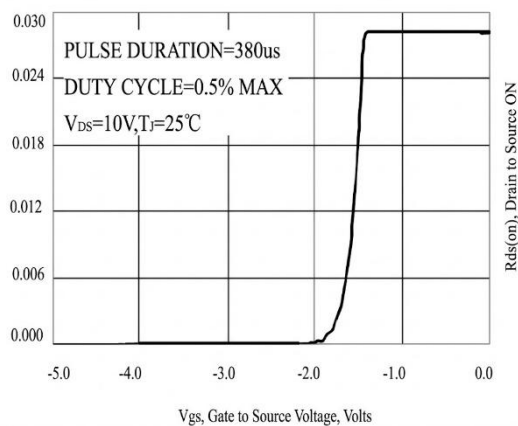


Fig 6. Typical Drain to Source ON Resistance vs Junction Temperature

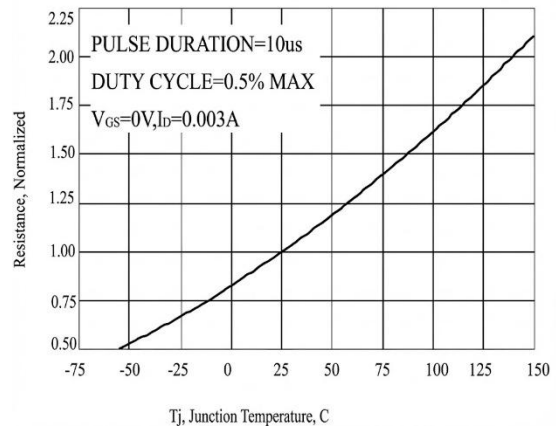




Fig 7. Typical Threshold Voltage vs
Junction Temperature

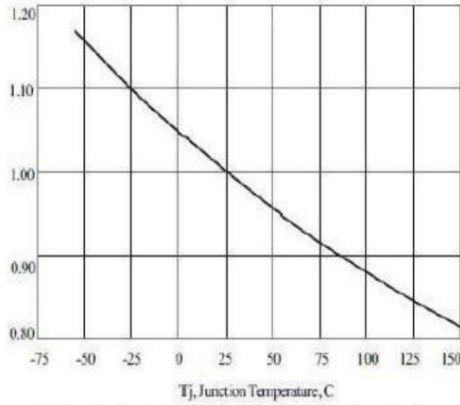


Fig 8. Typical Breakdown Voltage vs
Junction Temperature

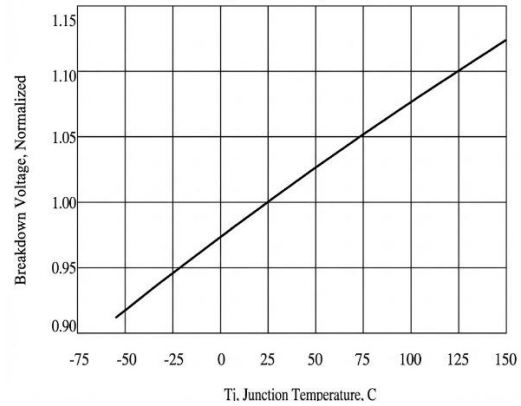


Fig 9. Typical Capacitance vs
Drain to Source Voltage

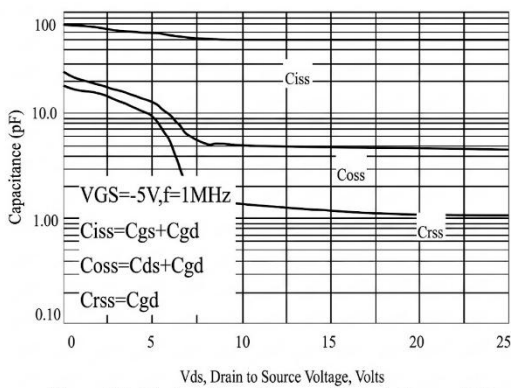


Figure 10 Typical Capacitance vs Drain to Source Voltage

Fig 10. Typical Transfer Characteristics

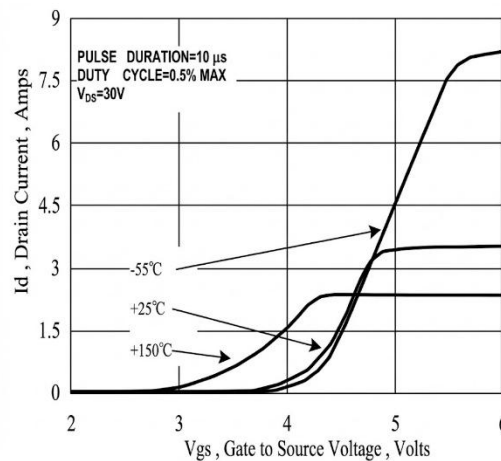


Fig 11. Typical Drain to Source ON Resistance vs
Drain Current

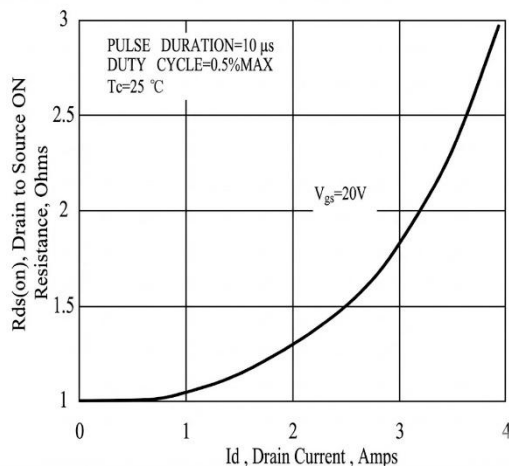


Fig 12. Typical Drain to Source ON Resistance vs
Junction temperature

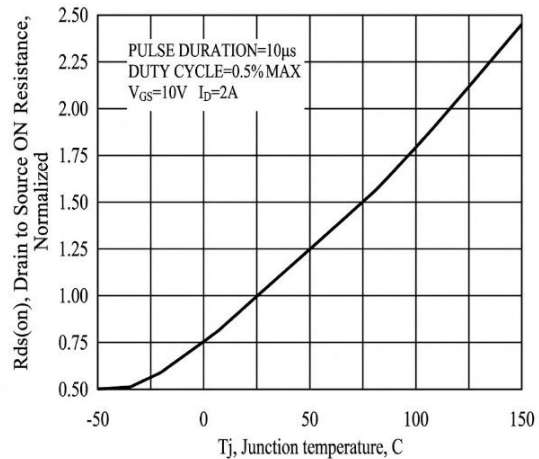
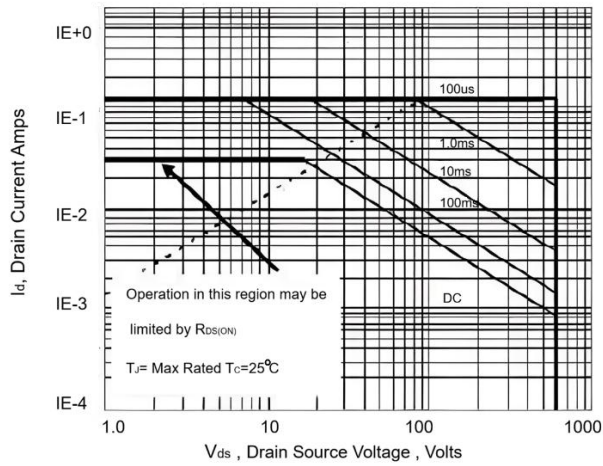




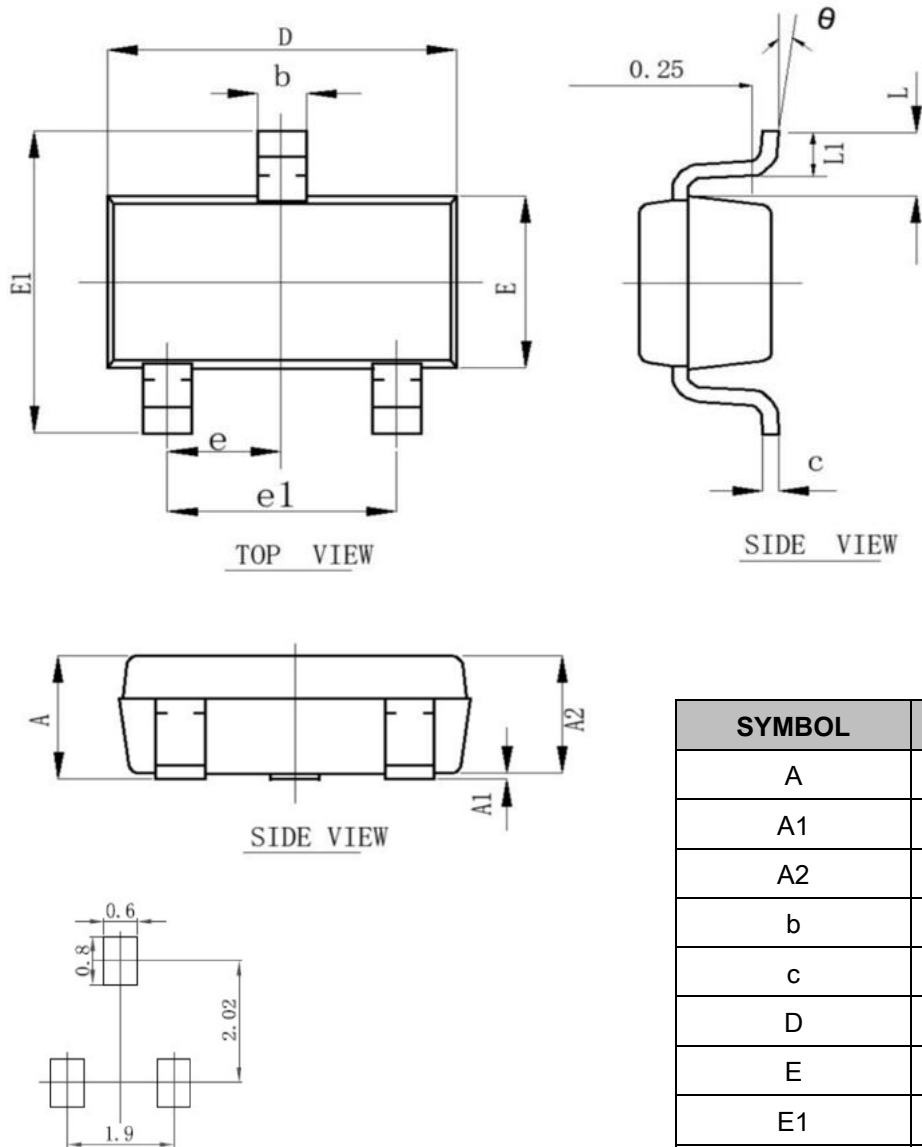
Fig 13. Maximum Forward Bias Safe Operating Area





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



The recommended mounting pad size

SYMBOL	MIN	MAX
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.00
E	1.200	1.400
E1	2.250	2.550
L	0.550 REF	
θ	0°	8°
L1	0.300	0.500
e	0.950 TYP.	
e1	1.800	2.000

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