



## BSS84Z

Power MOSFET

### -0.13A, -50V P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

#### DESCRIPTION

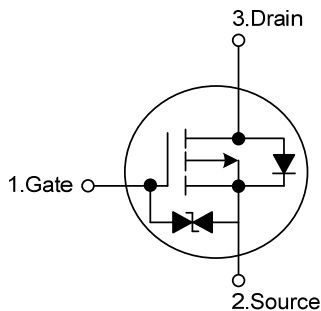
These P-Channel enhancement mode field vertical D-MOS transistors are in a SOT-23-3 SMD package, and in most applications they require up to -0.13A DC and can deliver current up to -0.52A.

This product is particularly suited to low voltage applications requiring a low current high side switch.

#### FEATURES

\*  $R_{DS(ON)} \leq 10 \Omega$  @  $V_{GS} = -4.5V$ ,  $I_D = -0.1A$

#### SYMBOL



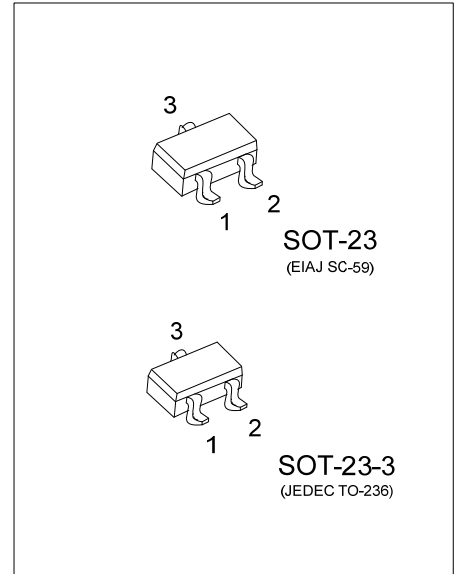
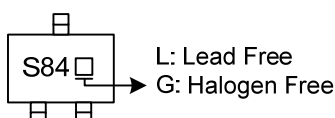
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
BSS84ZL-AE2-R	BSS84ZG-AE2-R	SOT-23-3	G	S	D	Tape Reel
BSS84ZL-AE3-R	BSS84ZG-AE3-R	SOT-23	G	S	D	Tape Reel

Note: Pin Assignment: G: Gate S: Source D: Drain

<p>BSS84ZG-AE2-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V <sub>DSS</sub>	-50	V
Gate-Source Voltage		V <sub>GSS</sub>	±20	V
Continuous Drain Current	DC	I <sub>D</sub>	-0.13	A
	Pulse		-0.52	A
Power Dissipation		P <sub>D</sub>	0.3	W
Junction Temperature		T <sub>J</sub>	+150	°C
Storage Temperature		T <sub>STG</sub>	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	416 (Note)	$^\circ\text{C/W}$

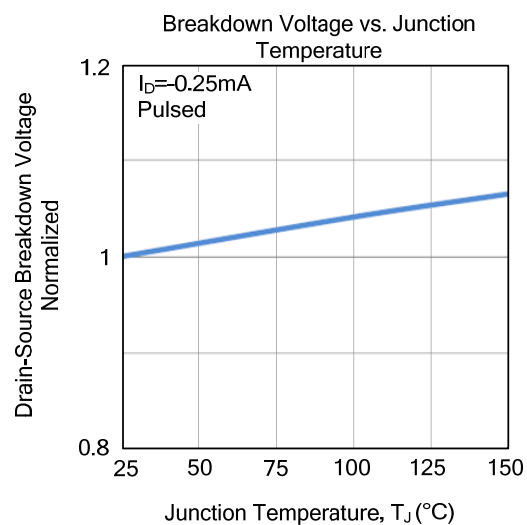
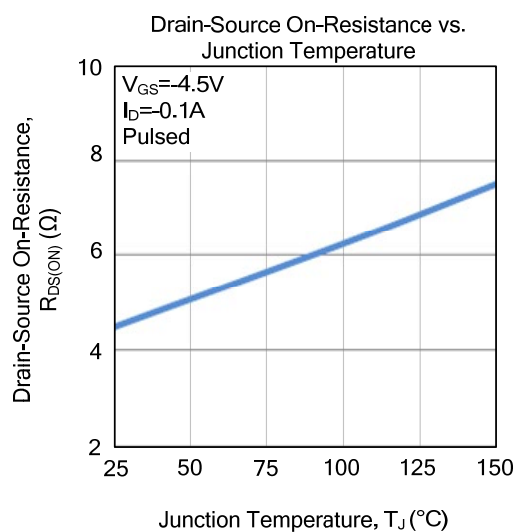
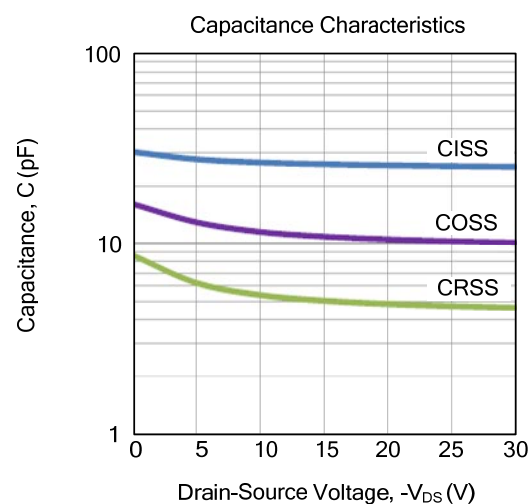
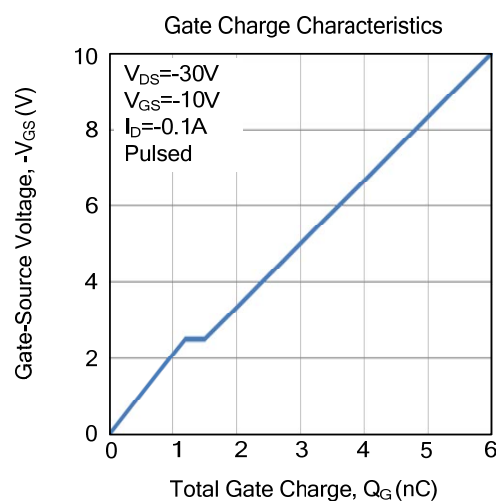
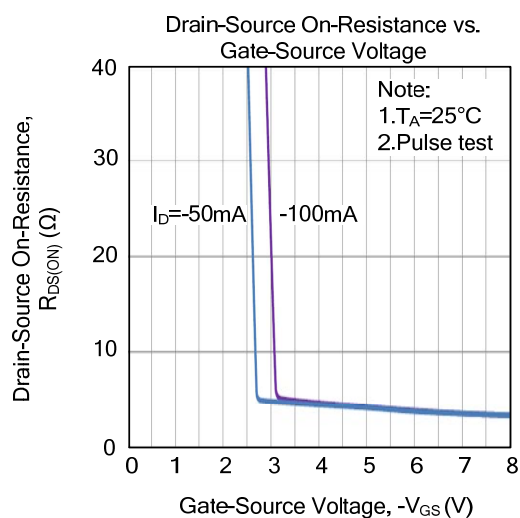
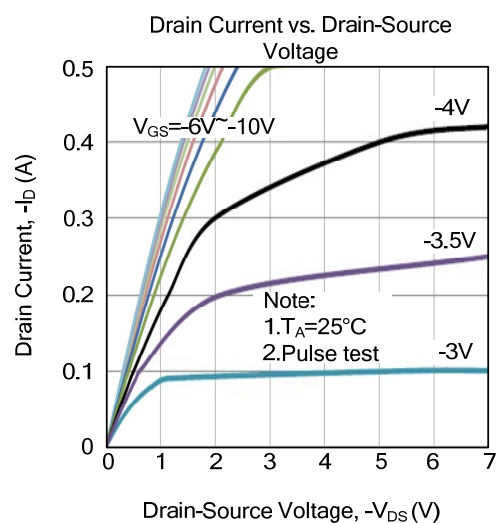
Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

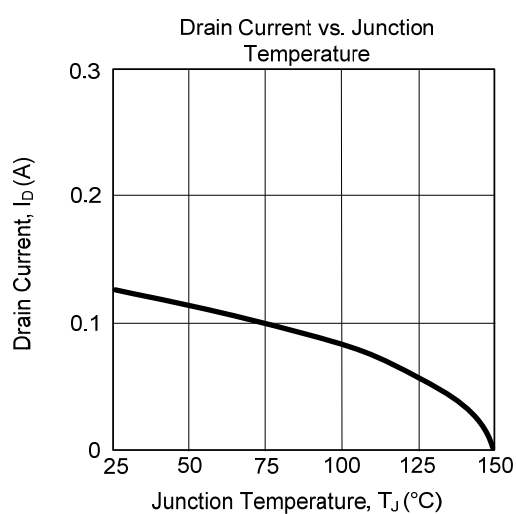
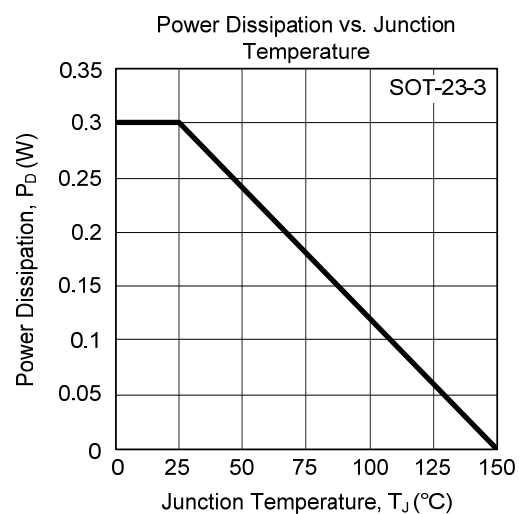
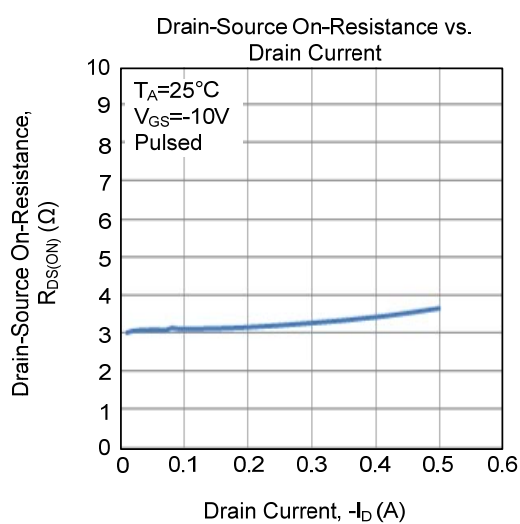
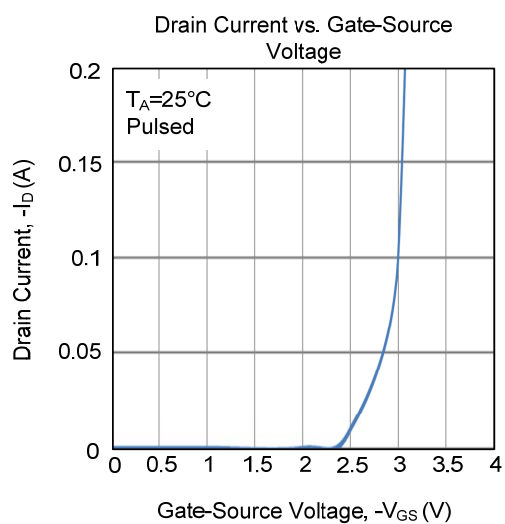
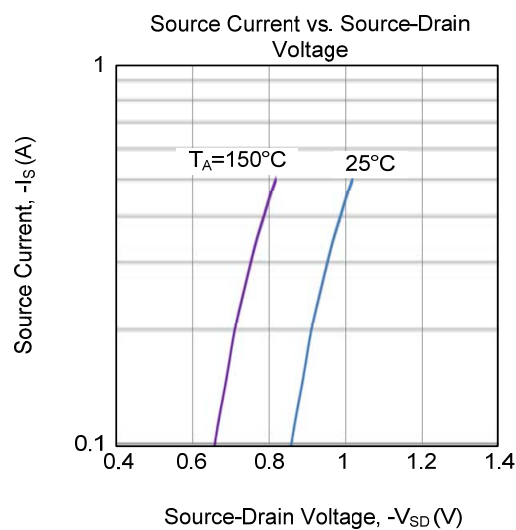
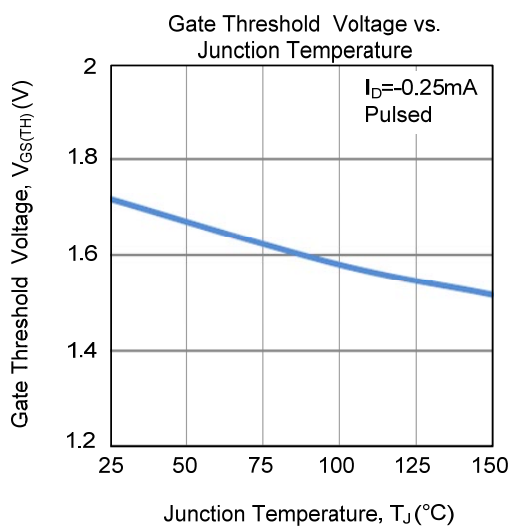
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-50			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V			-15	μA
Gate-Body Leakage, Forward	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±10	μA
ON CHARACTERISTICS (Note)						
Gate-Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-1mA	-0.8	-1.7	-2.5	V
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-0.1A			10	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1MHz		25		pF
Output Capacitance	C <sub>OSS</sub>			10		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			4.8		pF
SWITCHING PARAMETERS (Note)						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-0.1A (Note 1, 2)		6		nC
Gate Source Charge	Q <sub>GS</sub>			1.2		nC
Gate Drain Charge	Q <sub>GD</sub>			0.3		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =-30V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-0.1A, R <sub>G</sub> =3Ω (Note 1, 2)		1.6		ns
Turn-ON Rise Time	t <sub>R</sub>			20		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			28		ns
Turn-OFF Fall-Time	t <sub>F</sub>			32		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Max. Diode Forward Current	I <sub>S</sub>				-0.13	A
Pulsed Drain-Source Current	I <sub>SM</sub>				-0.52	A
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> =-0.13A (Note)		-0.8	-1.2	V

Note: Pulse test, pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

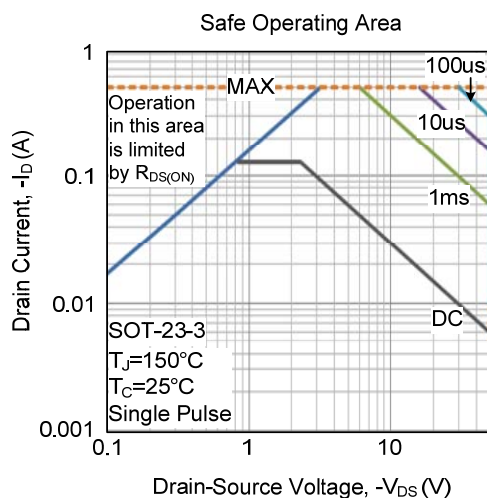
# TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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