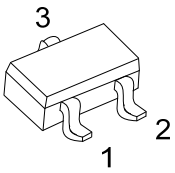
BSS84Z

Power MOSFET

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



SOT-23-3
(JEDEC TO-236)

■ DESCRIPTION

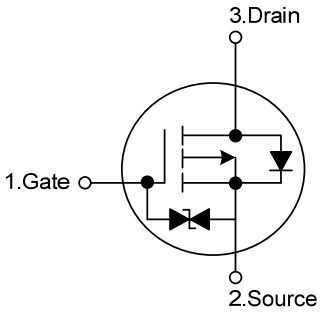
These P-Channel enhancement mode field vertical D-MOS transistors are in a SOT-23-3 SMD package, and in most applications they require up to -0.13A DC and can deliver current up to -0.52A.

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



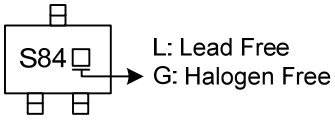
■ ORDERING INFORMATION

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

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

BSS84ZG-AE2-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE2: SOT-23-3 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-50	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	DC	I_D	-0.13	A
	Pulse		-0.52	A
Power Dissipation		P_D	0.3	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-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	θ_{JA}	416 (Note)	°C/W

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

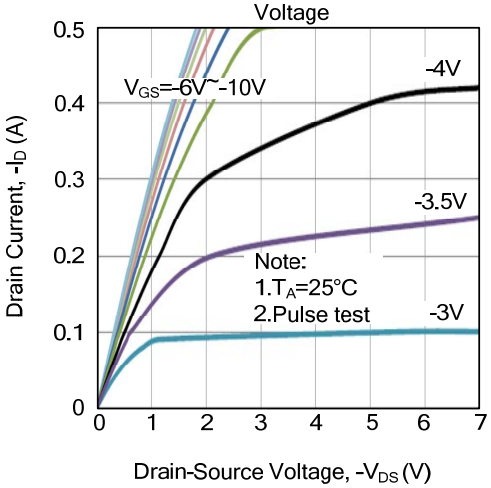
■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-50			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-50V, V_{GS}=0V			-15	μA
Gate–Body Leakage, Forward	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±10	μA
ON CHARACTERISTICS (Note)						
Gate-Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-1mA	-0.8	-1.7	-2.5	V
Static Drain–Source On–Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-0.1A			10	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=-25V, V_{GS}=0V, f=1MHz		25		pF
Output Capacitance	C_{OSS}			10		pF
Reverse Transfer Capacitance	C_{RSS}			4.8		pF
SWITCHING PARAMETERS (Note)						
Total Gate Charge	Q_G	V_{DS}=-30V, V_{GS}=-10V, I_D=-0.1A (Note 1, 2)		6		nC
Gate Source Charge	Q_{GS}			1.2		nC
Gate Drain Charge	Q_{GD}			0.3		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{DD}=-30V, V_{GS}=-10V, I_D=-0.1A, R_G=3Ω (Note 1, 2)		1.6		ns
Turn-ON Rise Time	t_R			20		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			28		ns
Turn-OFF Fall-Time	t_F			32		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Max. Diode Forward Current	I_S				-0.13	A
Pulsed Drain-Source Current	I_{SM}				-0.52	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}= 0V, I_S=-0.13A (Note)		-0.8	-1.2	V

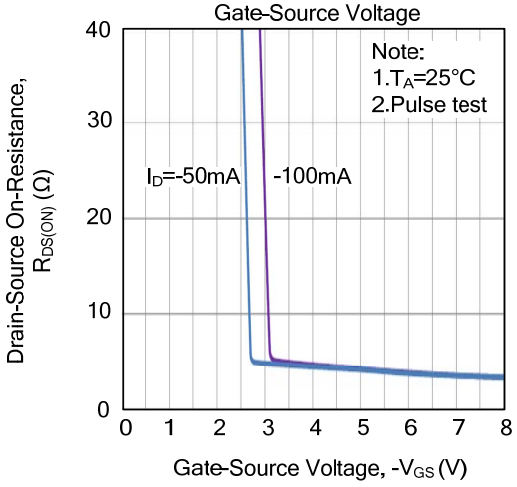
Note: Pulse test, pulse width ≤ 300us, duty cycle≤ 2%.

■ TYPICAL CHARACTERISTICS

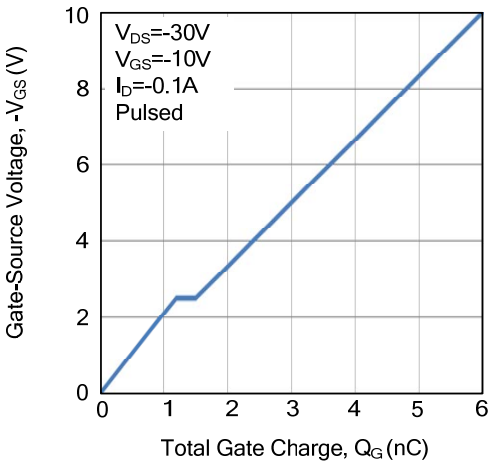
Drain Current vs. Drain-Source Voltage



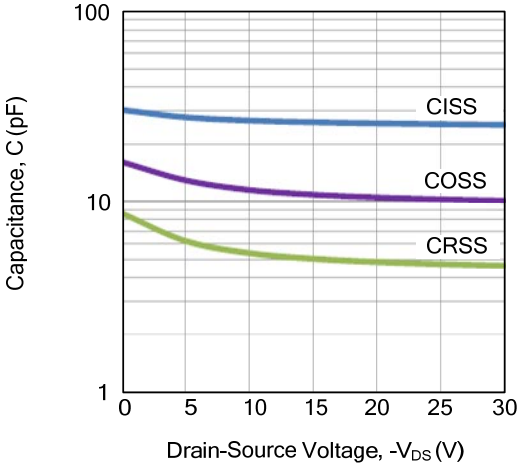
Drain-Source On-Resistance vs. Gate-Source Voltage



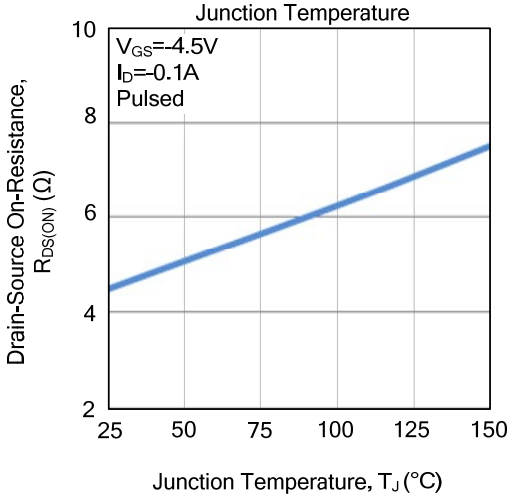
Gate Charge Characteristics



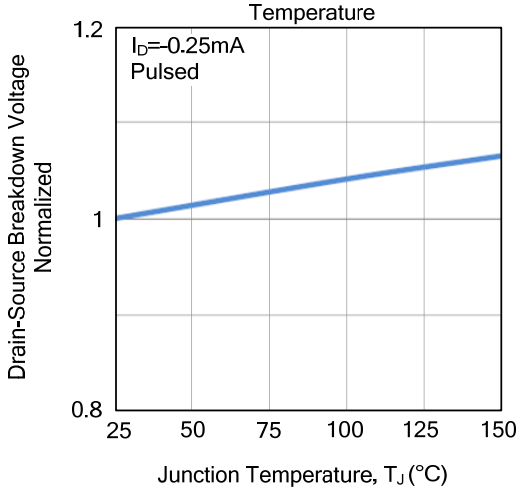
Capacitance Characteristics



Drain-Source On-Resistance vs. Junction Temperature

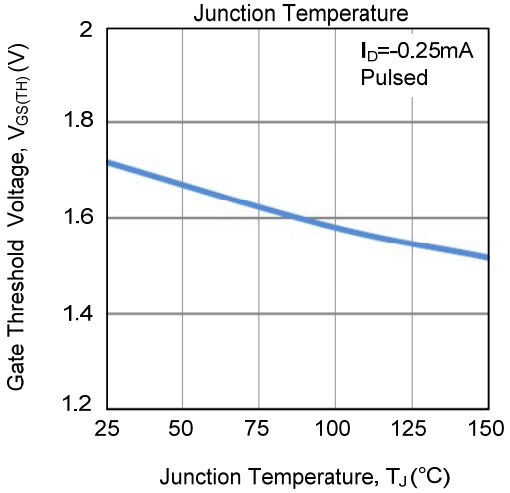


Breakdown Voltage vs. Junction Temperature

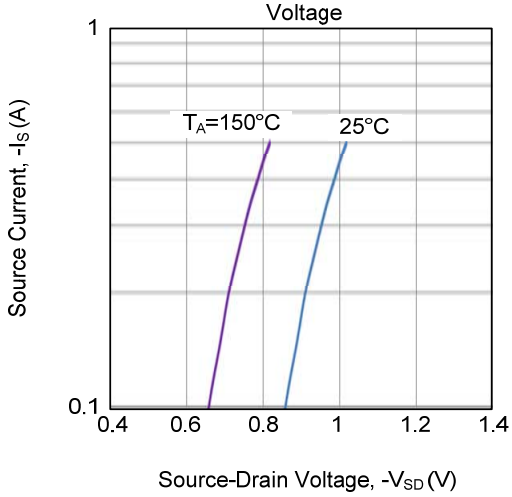


■ TYPICAL CHARACTERISTICS (Cont.)

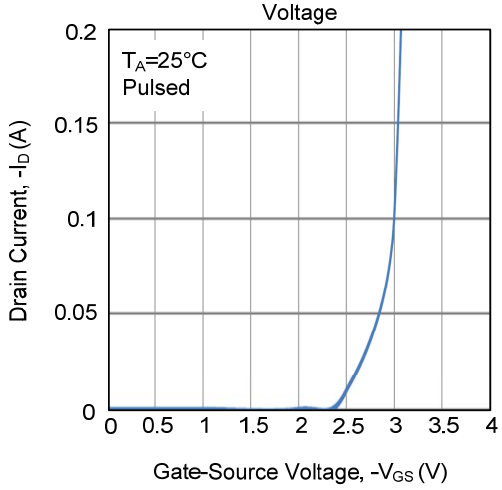
Gate Threshold Voltage vs. Junction Temperature



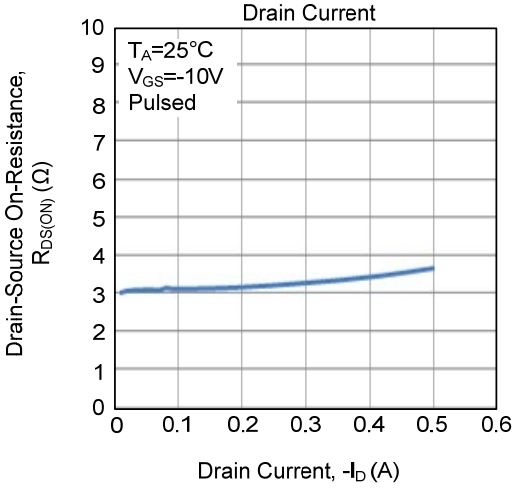
Source Current vs. Source-Drain Voltage



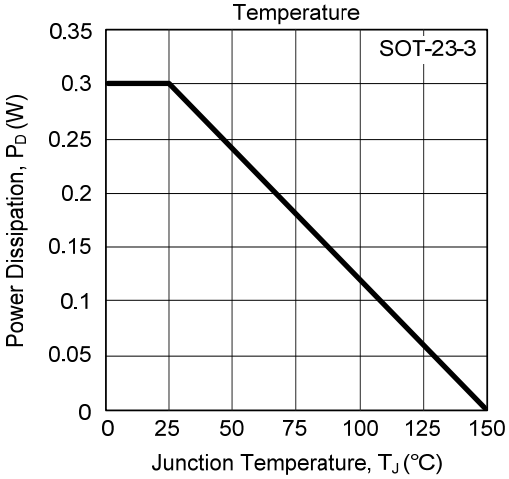
Drain Current vs. Gate-Source Voltage



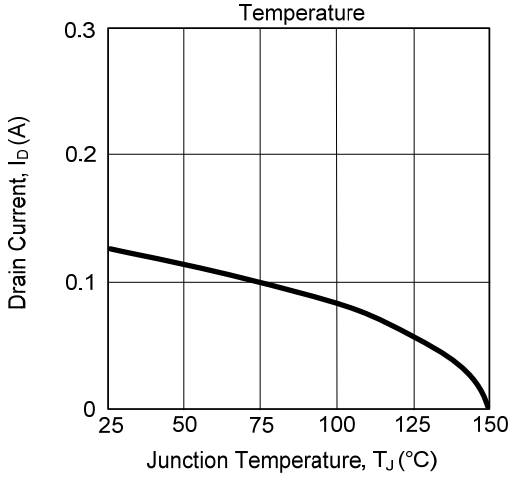
Drain-Source On-Resistance vs. Drain Current



Power Dissipation vs. Junction Temperature



Drain Current vs. Junction Temperature



■ TYPICAL CHARACTERISTICS (Cont.)