

BSS84E-AU

60V P-Channel Enhancement Mode MOSFET – ESD Protected

Voltage

-60 V

Current

-250mA

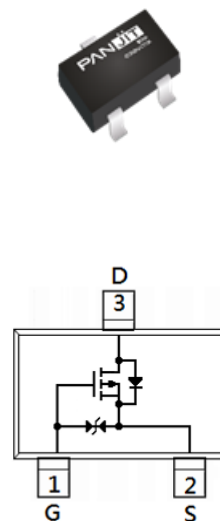
Features

- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-500mA < 4\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-200mA < 6\Omega$
- Advanced Trench Process Technology
- ESD Protected
- AEC-Q101 qualified
- Specially Designed for Switch Load, PWM Application, etc
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : SOT-23 Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0084 grams

SOT-23



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V _{DS}	-60	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current ^(Note 4)	T _A =25°C	I _D	-250	mA
Pulsed Drain Current ^(Note 1)	T _A =25°C	I _{DM}	-1000	
Power Dissipation	T _A =25°C	P _D	500	mW
	Derate above 25°C		4	mW/°C
Operating Junction and Storage Temperature Range		T _J ,T _{STG}	-55~150	°C
Thermal Resistance		R _{θJA}	250	°C/W
- Junction to Ambient ^(Note 4)				

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.8	-1.4	-2	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V,I _D =-500mA	-	2.1	4	Ω
		V _{GS} =-4.5V,I _D =-200mA	-	2.5	6	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±10	
Dynamic ^(Note 6)						
Total Gate Charge	Q _g	V _{DS} =-30V, I _D =-250mA, V _{GS} =-10V	-	1.86	3	nC
Gate-Source Charge	Q _{gs}		-	0.34	-	
Gate-Drain Charge	Q _{gd}		-	0.27	-	
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1MHz	-	34.4	60	pF
Output Capacitance	C _{oss}		-	7.3	15	
Reverse Transfer Capacitance	C _{rss}		-	2.4	5	
Turn-On Delay Time	td _(on)	V _{DD} =-30V, I _D =-250mA, V _{GS} =-10V, R _G =6Ω ^(Note 1,2)	-	4.6	-	ns
Turn-On Rise Time	tr		-	3.1	-	
Turn-Off Delay Time	td _(off)		-	40	-	
Turn-Off Fall Time	tf		-	23	-	
Drain-Source Diode						
Continuous Diode Forward Current	I _S	T _A =25 °C	-	-	-250	mA
Continuous Diode Forward Current	I _{SM}		-	-	-1000	mA
Diode Forward Voltage	V _{SD}	I _S =-500mA,V _{GS} =0V	-	-0.95	-1.3	V

NOTES :

1. Pulse width≤300us, Duty cycle≤2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C .Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
4. The maximum current rating is package limited.
5. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 inch² with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

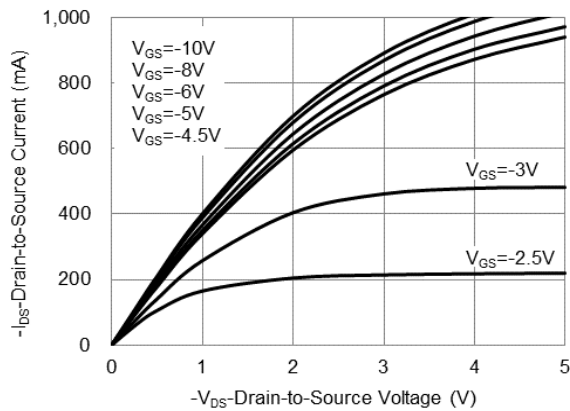


Fig.1 On-Region Characteristics

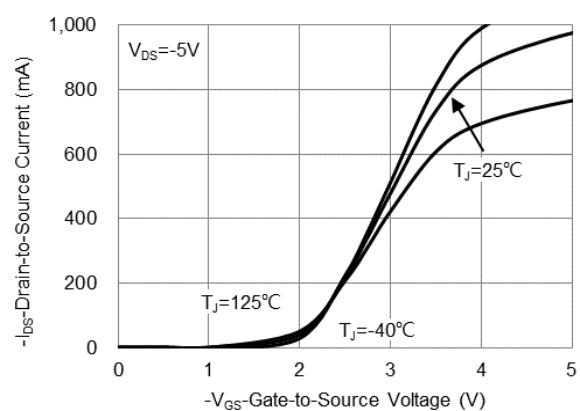


Fig.2 Transfer Characteristics

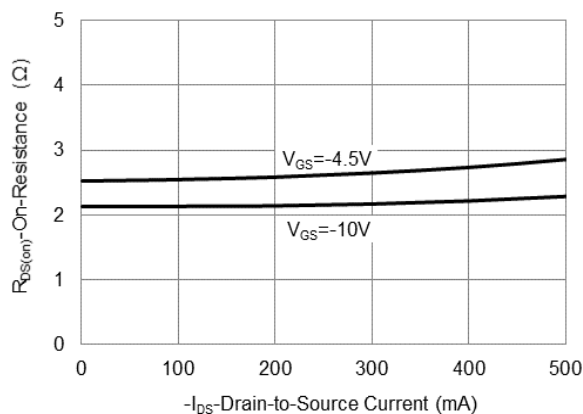


Fig.3 On-Resistance vs. Drain Current

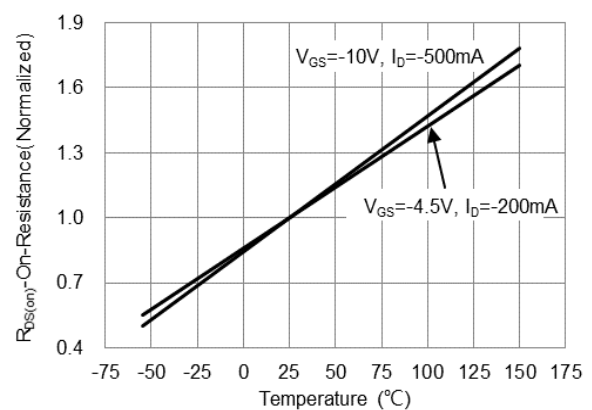


Fig.4 On-Resistance vs. Junction temperature

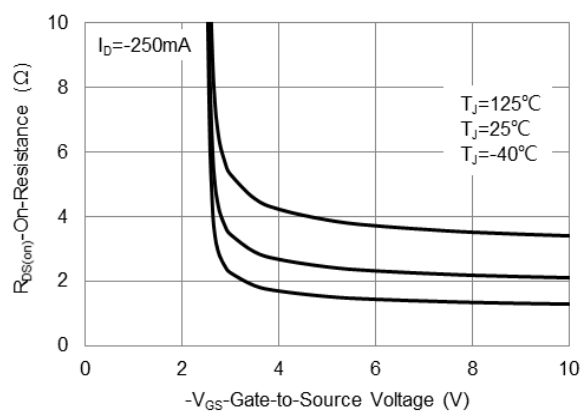


Fig.5 On-Resistance Variation with V_{GS}

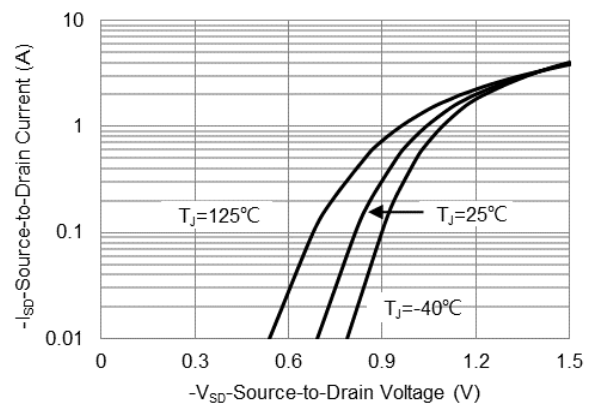
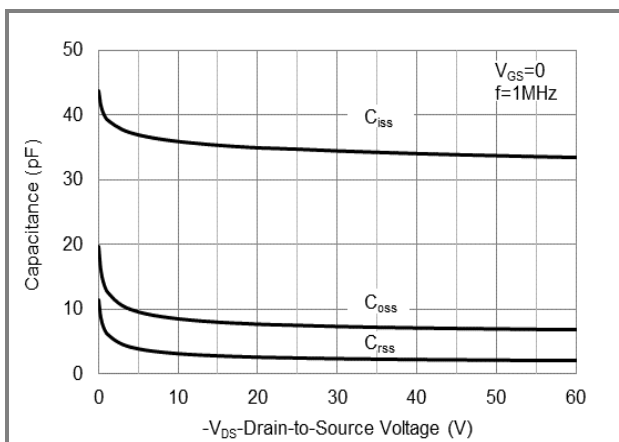
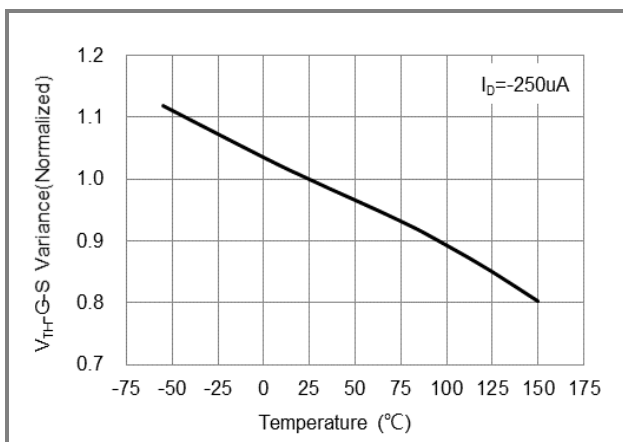
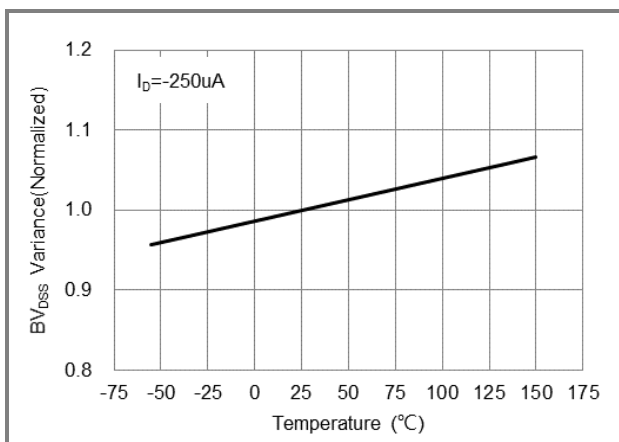
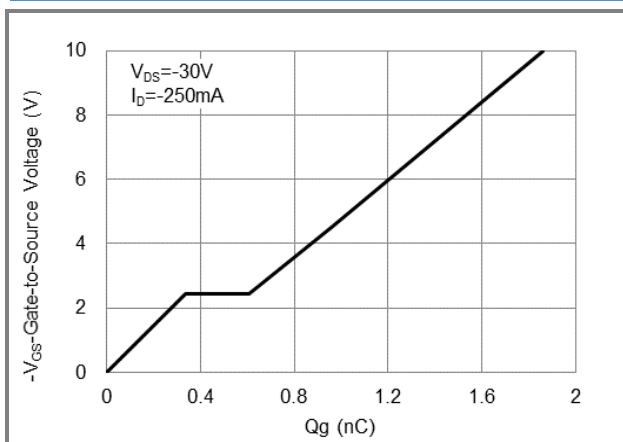


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

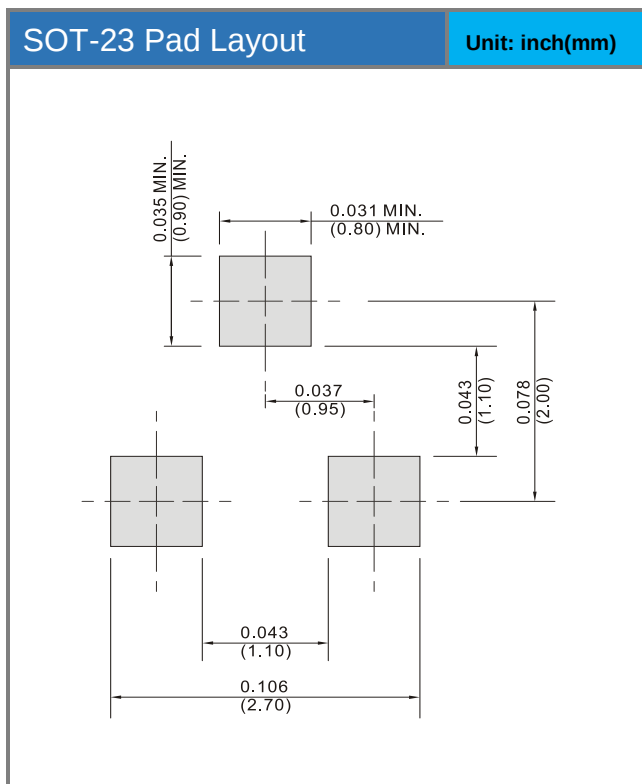
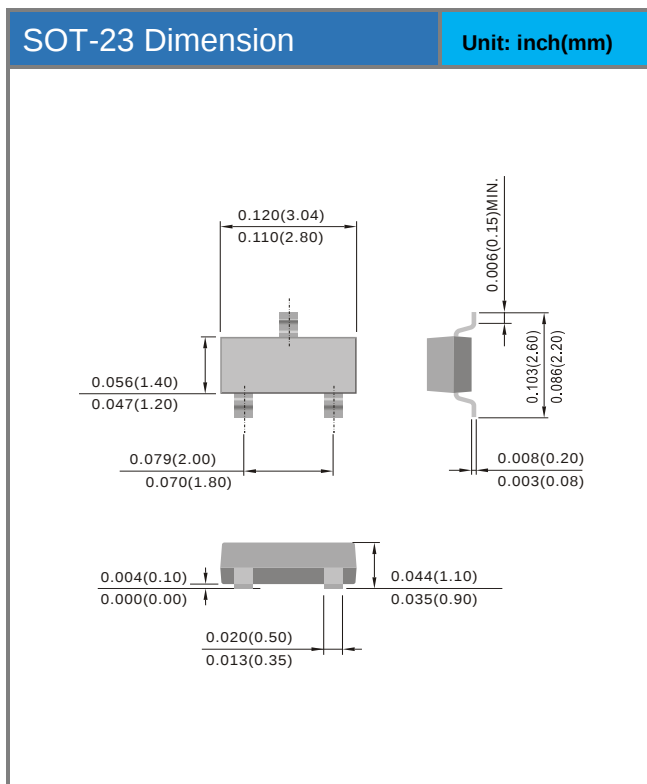


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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
BSS84E-AU	SOT-23	3K pcs / 7" reel	84E

Packaging Information & Mounting Pad Layout



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