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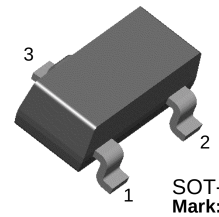
BCW32

NPN General Purpose Amplifier

- This device is designed for general purpose applications at collector currents to 300mA.
- Sourced from process 10.



SOT-23
Mark: D2

1. Base 2. Emitter 3. Collector

Absolute Maximum Ratings * T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	32	V
V_{CBO}	Collector-Base Voltage	32	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector current (DC)	500	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 2.0mA, I_B = 0	32			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	I_C = 10μA, I_B = 0	32			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_C = 10μA, I_C = 0	5.0			V
I_{CBO}	Collector Cutoff Current	V_{CB} = 32V, I_E = 0 V_{CB} = 32V, I_E = 0, T_A = 100°C			100 10	nA μA
On Characteristics						
h_{FE}	DC Current Gain	I_C = 2.0mA, V_{CE} = 5.0V	200		450	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 10mA, I_B = 0.5mA			0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = 2.0mA, V_{CE} = 5.0V	0.55		0.7	V
Small Signal Characteristics						
f_T	Current Gain Bandwidth Product	I_C = 2.0mA, V_{CE} = 5.0V f = 35MHz	200			
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1.0MHz			4.0	pF
NF	Noise Figure	I_C = 0.2mA, V_{CE} = 5.0V R_S = 2.0kΩ, f = 1.0kHz B_W = 200Hz			10	dB

Thermal Characteristics T_A=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

Device mounted on FR-4PCB 40mm × 40mm × 1.5mm

Typical Characteristics

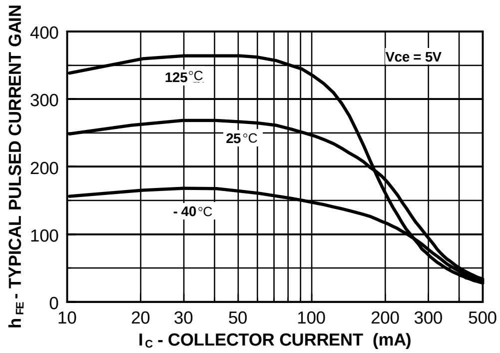


Figure 1. Typical Pulsed Current Gain vs Collector Current

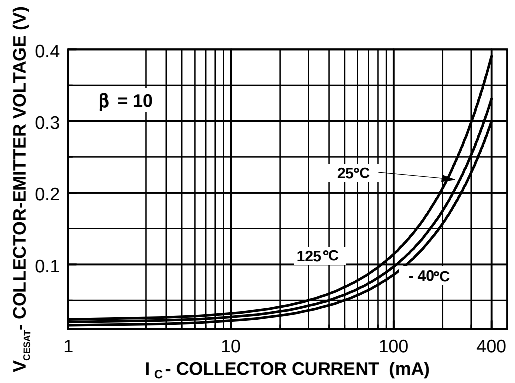


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

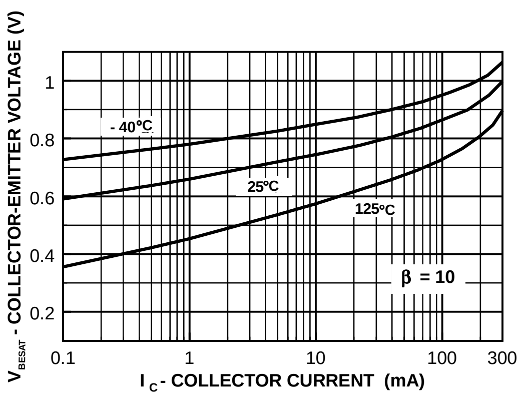


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

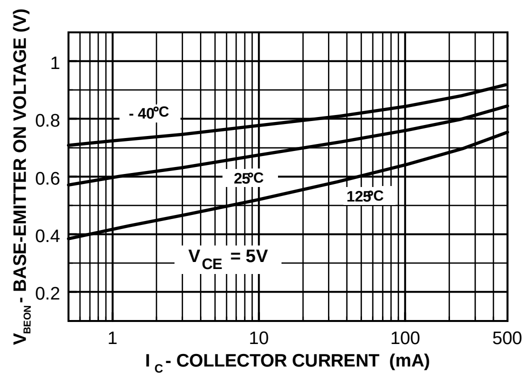


Figure 4. Base-Emitter On Voltage vs Collector Current

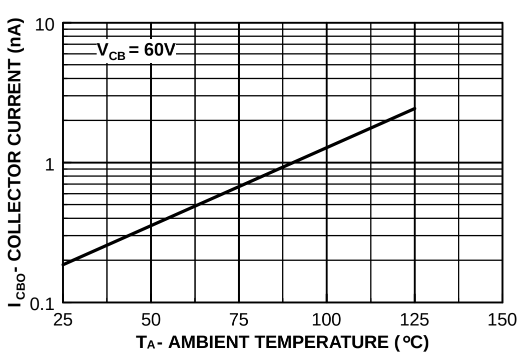


Figure 5. Collector-Cutoff Current vs Ambient Temperature

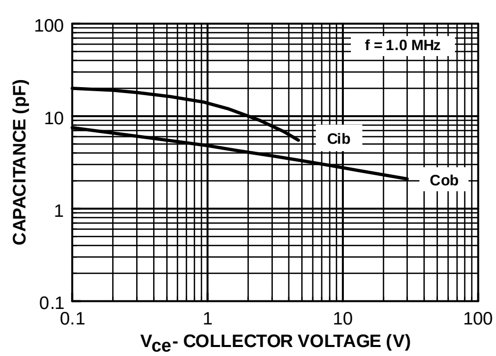


Figure 6. Input and Outtput Capacitance vs Reverse Voltage

Typical Characteristics (Continued)

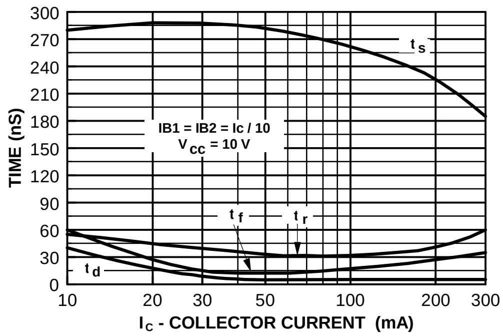


Figure 7. Switching Times vs Collector Current

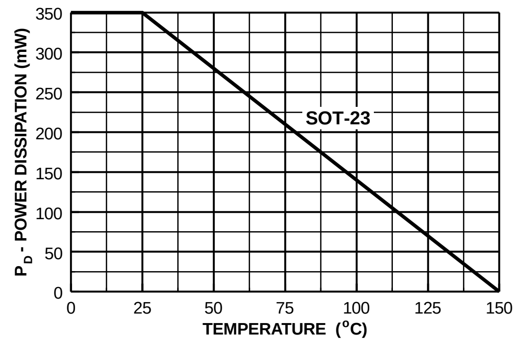
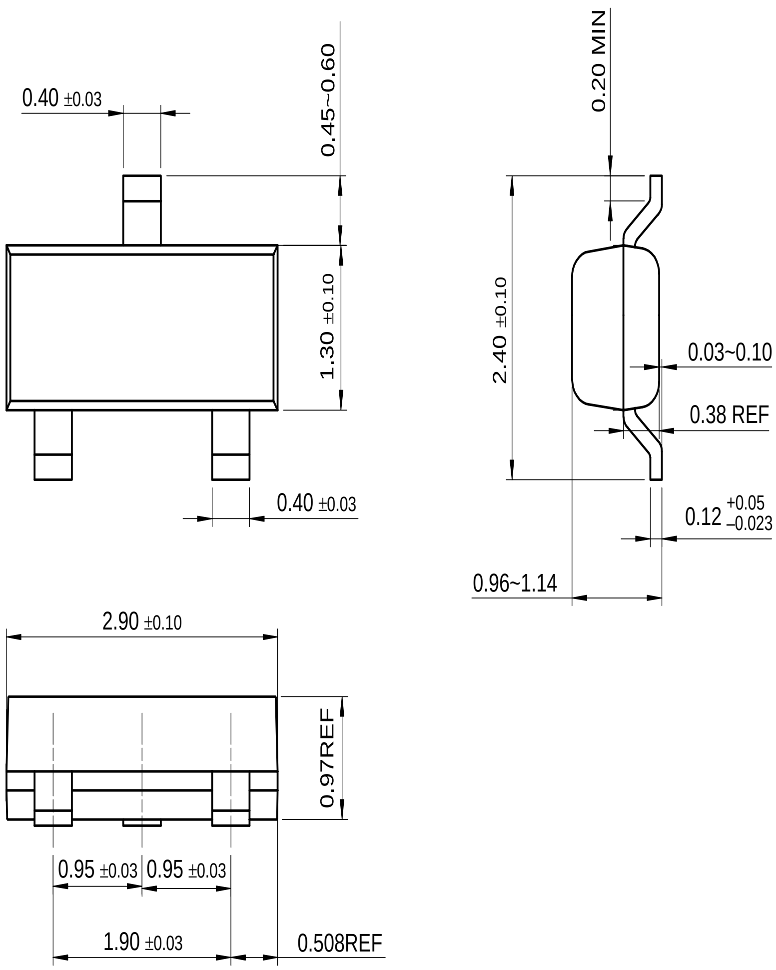


Figure 8. Power Dissipation vs Ambient Temperature

Package Dimensions

SOT-23



Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOME™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E^{2}CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I^{2}C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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