

NPN General Purpose Amplifier

BCW31/32/33

FEATURES

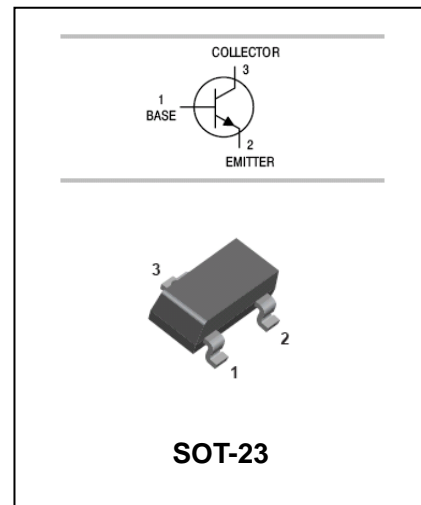
- Low current(max.100mA).
- Low voltage(max.32V).



Lead-free

APPLICATIONS

- General purpose switching and amplification.



ORDERING INFORMATION

Type No.	Marking	Package Code
BCW31	D1	SOT-23
BCW32	D2	SOT-23
BCW33	D3	SOT-23

MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	32	V
V _{CEO}	Collector-Emitter Voltage	32	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	100	mA
I _{CM}	Collector Current -Peak	200	mA
I _{BM}	Base Current-Peak	200	mA
P _D	Total Device Dissipation	250	mW
R _{th j-a}	Thermal resistance from junction to ambient	357	°C/W
T _j , T _{stg}	Junction and Storage Temperature	-55 to +150	°C



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ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	Typ	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=2.0mA$ $I_E=0$	32			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\mu A$ $I_B=0$	32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A$ $I_C=0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB}=32V$ $I_E=0$			100	nA
		$V_{CB}=32V$ $I_E=0$ $T_J=100^\circ C$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V$ $I_C=0$			100	nA
DC current gain	h_{FE}	$V_{CE}=5V$ $I_C=10\mu A$ BCW31		190		
		BCW32		330		
		BCW33		600		
		$V_{CE}=5V$ $I_C=2mA$ BCW31	110		220	
		BCW32	200		450	
		BCW33	420		800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA$ $I_B=0.5mA$			0.25	V
Base-emitter On voltage	$V_{BE(on)}$	$I_C=2mA$ $V_{CE}=5V$	0.55		0.7	V
Collector Capacitance	C_C	$I_E=0, V_{CB}=10V, f=1MHz$		2.5		pF
Transition frequency	f_T	$V_{CE}=5V$ $I_C=10mA$ $f=100MHz$	100			MHz
Noise figure	NF	$V_{CE}=5V$ $I_C=200\mu A$ $R_S=2k\Omega$ $f=1kHz$ $B=200Hz$			10	dB

TYPICAL CHARACTERISTICS

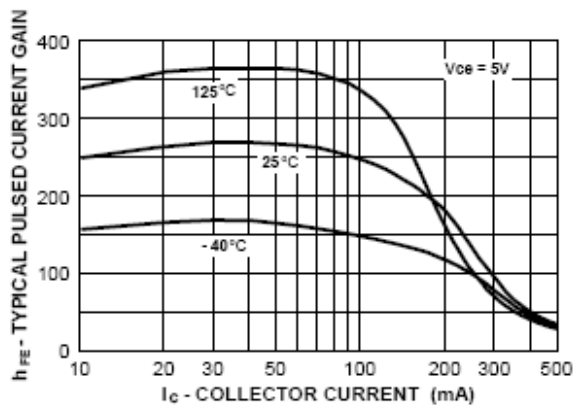


Figure 1. Typical Pulsed Current Gain vs Collector Current

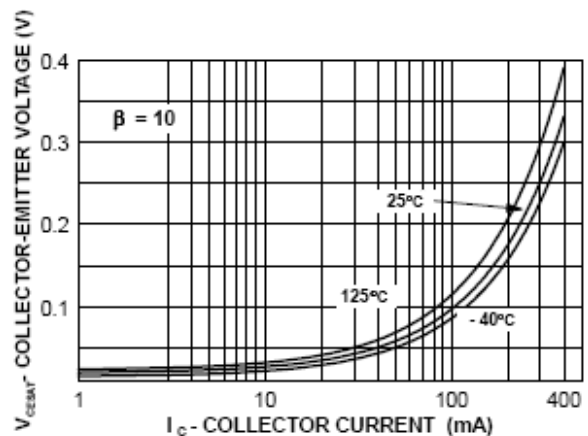


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

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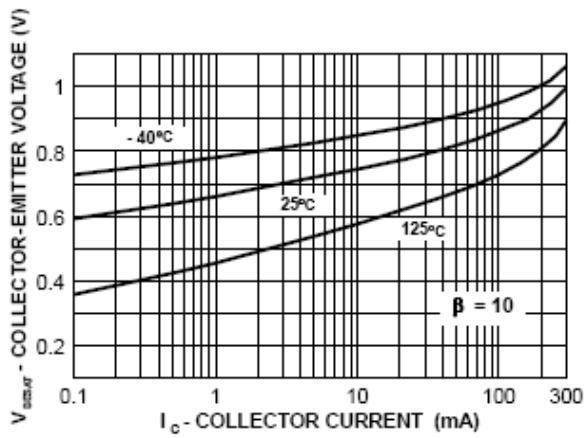


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

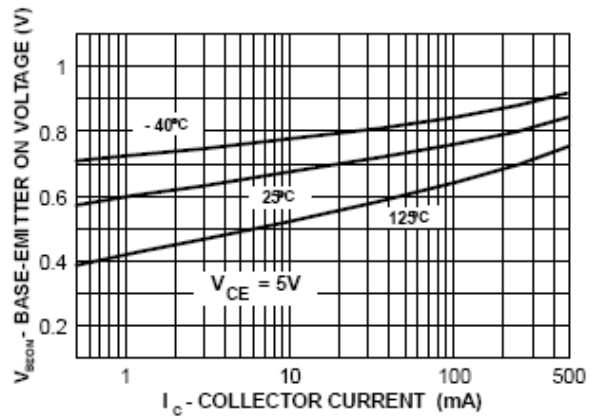


Figure 4. Base-Emitter On Voltage vs Collector Current

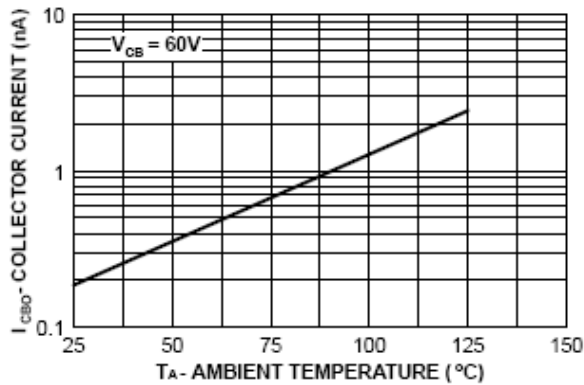


Figure 5. Collector-Cutoff Current vs Ambient Temperature

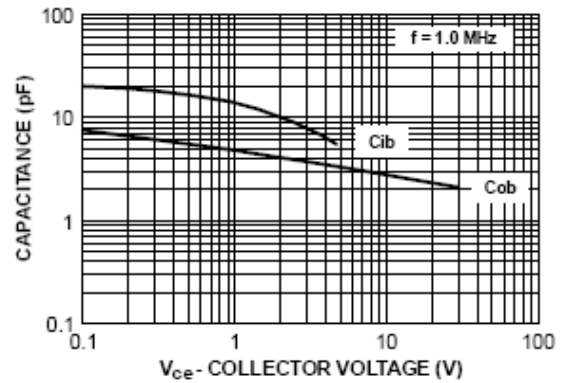


Figure 6. Input and Output Capacitance vs Reverse Voltage

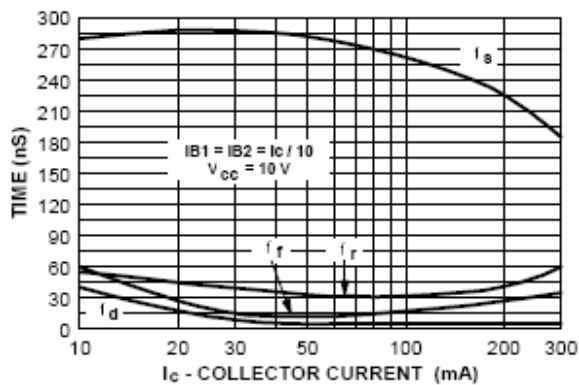


Figure 7. Switching Times vs Collector Current

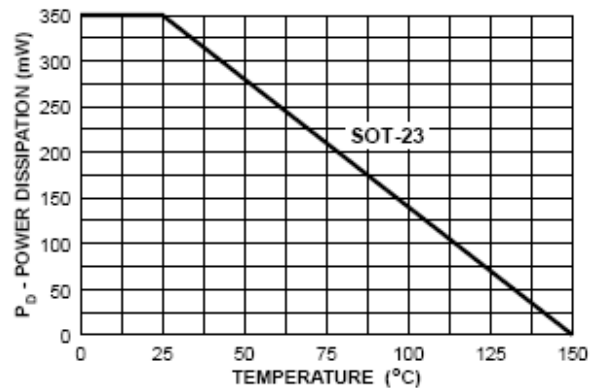


Figure 8. Power Dissipation vs Ambient Temperature



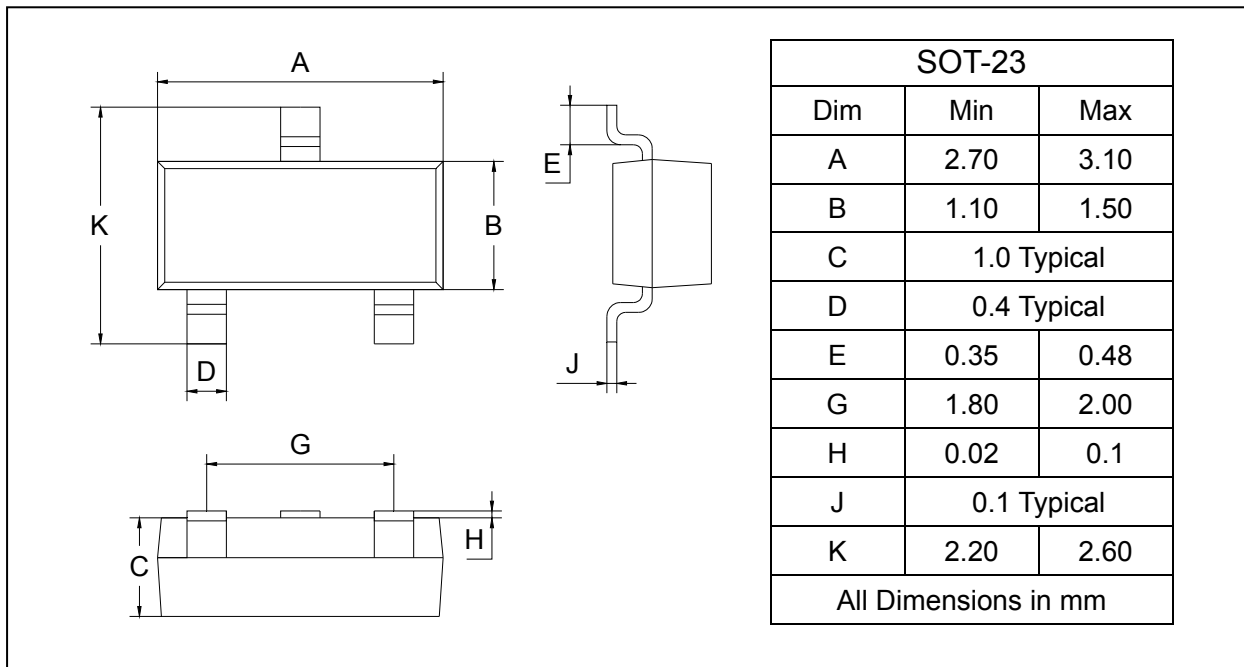
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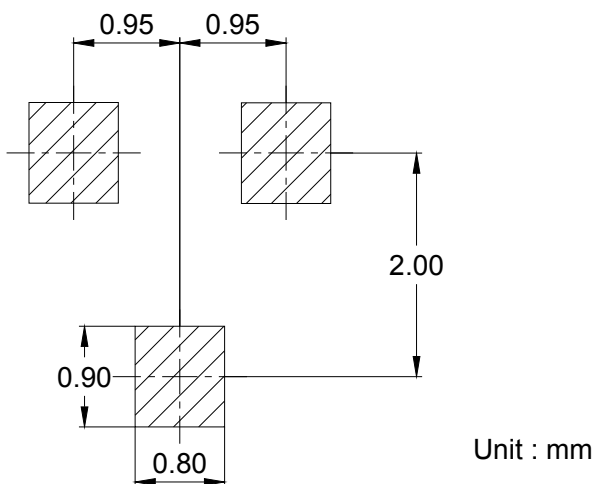
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BCW31/32/33	SOT-23	3000/Tape&Reel