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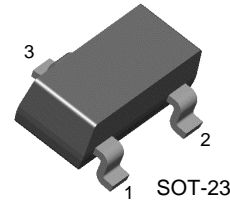
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## BCW60A/B/C/D

### General Purpose Transistor



SOT-23  
1. Base 2. Emitter 3. Collector

### NPN Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	32	V
$V_{CEO}$	Collector-Emitter Voltage	32	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current	100	mA
$P_C$	Collector Power Dissipation	350	mW
$T_{STG}$	Storage Temperature	150	$^\circ\text{C}$

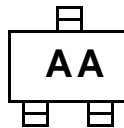
**Electrical Characteristics**  $T_a=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C=2\text{mA}, I_B=0$	32		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\mu\text{A}, I_C=0$	5		V
$I_{CES}$	Collector Cut-off Current	$V_{CE}=32\text{V}, V_{BE}=0$		20	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB}=4\text{V}, I_C=0$		20	nA
$h_{FE}$	DC Current Gain				
	: BCW60B	$V_{CE}=5\text{V}, I_C=10\mu\text{A}$	20		
	: BCW60C		40		
	: BCW60D		100		
	: BCW60A	$V_{CE}=5\text{V}, I_C=2\text{mA}$	120	220	
	: BCW60B		180	310	
	: BCW60C		250	460	
	: BCW60D		380	630	
	: BCW60A	$V_{CE}=1\text{V}, I_C=50\text{mA}$	60		
	: BCW60B		70		
	: BCW60C		90		
	: BCW60D		100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=50\text{mA}, I_B=1.25\text{mA}$ $I_C=10\text{mA}, I_B=0.25\text{mA}$		0.55 0.35	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=50\text{mA}, I_B=1.25\text{mA}$ $I_C=10\text{mA}, I_B=0.25\text{mA}$	0.7 0.6	1.05 0.85	V V
$V_{BE(on)}$	Base-Emitter On Voltage	$V_{CE}=5\text{V}, I_C=2\text{mA}$	0.55	0.75	V
$C_{ob}$	Output Capacitance	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		4.5	pF
$f_T$	Current Gain Bandwidth Product	$I_C=10\text{mA}, V_{CE}=5\text{V}, f=100\text{MHz}$	125		MHz
NF	Noise Figure	$I_C=0.2\text{mA}, V_{CE}=5\text{V}$ $R_G=2\text{K}\Omega, f=1\text{KHz}$		6	dB
$t_{ON}$	Turn On Time	$I_C=10\text{mA}, I_{B1}=1\text{mA}$		150	ns
$t_{OFF}$	Turn Off Time	$V_{BB}=3.6\text{V}, I_{B2}=1\text{mA}$ $R1=R2=5\text{K}\Omega, R_L=990\Omega$		800	ns

**Marking Code**

Type	BCW60A	BCW60B	BCW60C	BCW60D
Mark.	AA	AB	AC	AD

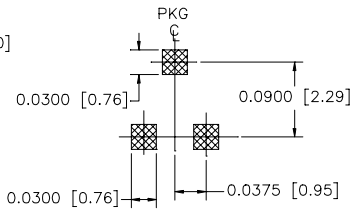
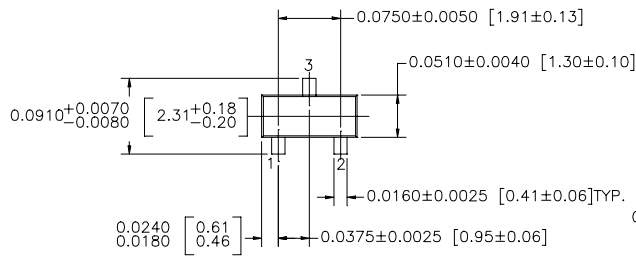
Marking



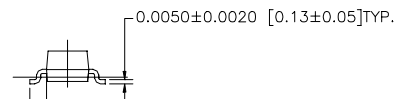
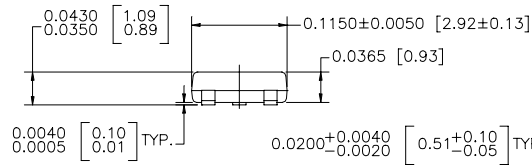
# Package Dimensions

BCW60A/B/C/D

## SOT-23



LAND PATTERN RECOMMENDATION



SOT 23, 3 LEADS LOW PROFILE

CONTROLLING DIMENSION IS INCH  
VALUES IN [ ] ARE MILLIMETERS

NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS  
MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

Dimensions in Millimeters

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