

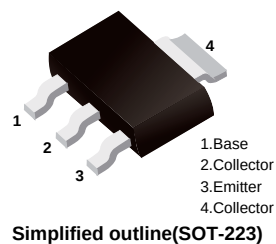
FEATURES

For AF driver and output stages

High collector current

Low collector-emitter saturation voltage

Complementary to BCP54,BCP55,BCP56



BCP51/52/53

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings $T_a = 25^{\circ}\text{C}$

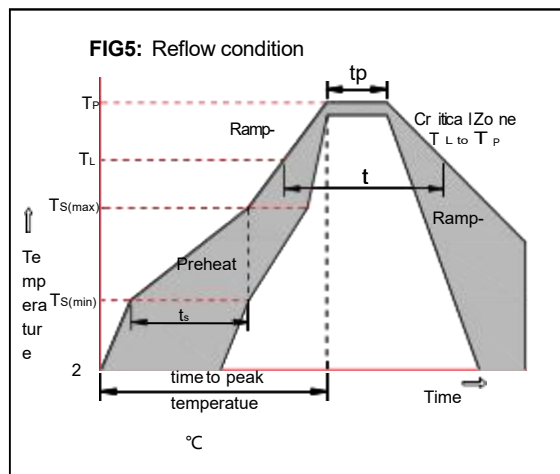
Parameter	Symbol	BCP51	BCP52	BCP53	Unit
Collector - Base Voltage	V _{CBO}	-45	-60	-100	V
Collector - Emitter Voltage	V _{CEO}	-45	-60	-80	
Emitter - Base Voltage	V _{EBO}	-5			
Collector Current - Continuous	I _C	-1			A
Collector Power Dissipation	P _C	1.5			W
Thermal Resistance Junction to Ambient	R _{θJA}	94			°C/W
Junction Temperature	T _J	150			°C
Storage Temperature Range	T _{stg}	-65 to 150			

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter		Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	BCP51	VCBO	Ic= -100 μ A, IE= 0	-45			V
	BCP52			-60			
	BCP53			-100			
Collector- emitter breakdown voltage	BCP51	VCEO	Ic= -10 mA, IB= 0	-45			
	BCP52			-60			
	BCP53			-80			
Emitter - base breakdown voltage		VEBO	IE= -100 μ A, IC= 0	-5			
Collector-base cut-off current	BCP51	ICBO	VCB= -45 V , IE= 0			-0.1	μ A
	BCP52		VCB= -60 V , IE= 0			-0.1	
	BCP53		VCB= -100 V , IE= 0			-0.1	
Emitter cut-off current		IEBO	VEB= -5V , IC=0			-0.1	
Collector-emitter saturation voltage		VCE(sat)	IC=-500 mA, IB=-50mA			-0.5	V
Base - emitter saturation voltage		VBE(sat)	IC=-500 mA, IB=-50mA			-1.2	
Base-emitter voltage		VBE	VCE= -2V, IC= -500mA			-1	
DC current gain	hFE(1)		VCE= -2V, IC= -5mA	25			
	hFE(2)		VCE= -2V, IC= -150mA	63		250	
	hFE(3)		VCE= -2V, IC= -500mA	25			
Transition frequency		fT	VCE= -10V, IC= -50mA,f=100MHz	100			MHz

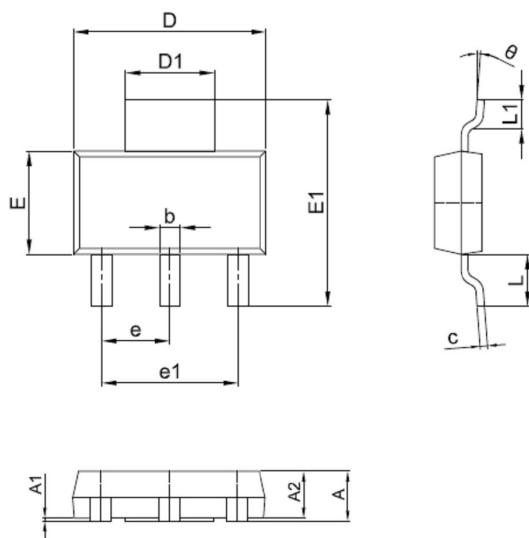
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150 °C
	-Temperature Max($T_{s(max)}$)	+200 °C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3 °C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3 °C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217 °C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5) °C
Time within 5 °C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6 °C/sec. Max
Time 25 °C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260 °C



Package Dimensions & Suggested Pad Layout

SOT-223



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	0.00	0.10	0.000	0.004
A2	1.50	1.70	0.059	0.067
b	0.65	0.75	0.026	0.030
c	0.20	0.30	0.008	0.012
D	6.40	6.60	0.252	0.260
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.85	7.15	0.270	0.281
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	1.65	1.85	0.065	0.073
L1	0.90	1.15	0.035	0.045