BCP54WK BCP55WK BCP56WK

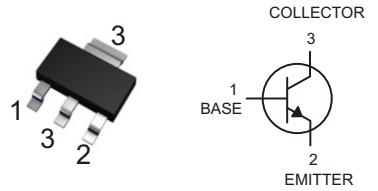
NPN TRANSISTOR

FEATURES

- High collector current and low VCE(SAT)
- Pb-free lead plating and halogen-free package

PINNING

PIN	DESCRIPTION
1	BASE
2	EMITTER
3	COLLECTOR



Simplified outline SOT-223 and symbol

CLASSIFICATION OF hFE(2)

Rank	16	25
Range	100-250	160-400

MAXIMUM RATINGS (Ta =25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Collector– Base Voltage	BCP54WK	V_{CBO}	45	V
	BCP55WK		60	
	BCP56WK		100	
Collector– Emitter Voltage	BCP54WK	V_{CEO}	45	V
	BCP55WK		60	
	BCP56WK		80	
Emitter– Base Voltage		V_{EBO}	5	V
Collector Current — Continuous		I_C	1	A
Collector Power Dissipation		P_C	1.5	W
Thermal Resistance From JunctionTo Ambient		$R_{\theta JA}$	83.3	°C/W
Operation Junction and Storage Temperature Range		T_J , T_{stg}	-55~ +150	°C

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

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = 100uA , I_E = 0	BCP54WK	45			V
			BCP55WK	60			
			BCP56WK	100			
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 10mA , I_B = 0	BCX54WN	45			V
			BCX55WN	60			
			BCX56WN	80			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 10uA , I_C = 0		5			V
Collector cut-off current	I_{CBO}	V_{CB} = 30V, I_E = 0				0.1	uA
Emitter cut-off current	I_{EBO}	V_{EB} = 5V, I_C =0				0.1	uA
DC current gain	$h_{FE(1)}$	V_{CE} = 2V, I_C = 5mA		25			
	$h_{FE(2)}$	V_{CE} = 2V, I_C = 150mA		100		400	
	$h_{FE(3)}$	V_{CE} = 2V, I_C = 500mA		25			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 500mA , I_B = 50mA				0.3	V
		I_C = 1A , I_B = 50mA				0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 1A , I_B = 50mA				1.2	V
Base-emitter voltage	$V_{BE(ON)}$	V_{CE} = 2V, I_C = 500mA				1.0	V
Transition frequency	f_T	V_{CE} =10V, I_C = 50mA, f=100MHz			125		MHz
Collector output capacitance	C_{ob}	V_{CB} = 10V , I_E = 0,f = 1MHz				10	pF

TYPICAL CHARACTERISTICS

Fig 1. Current Gain vs Collector Current

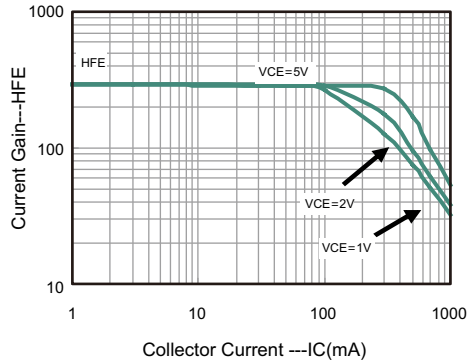


Fig 2. VCEsat vs Collector Current

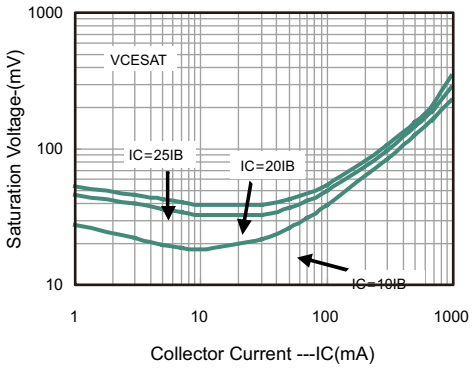


Fig 3. VBEsat vs Collector Current

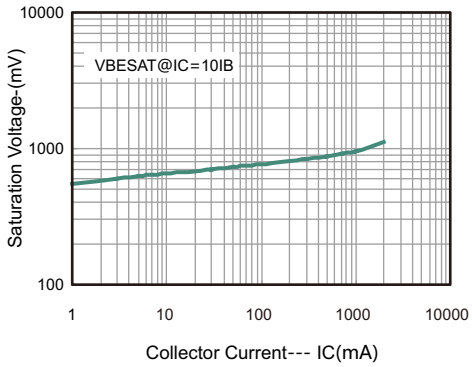


Fig 4. On Voltage vs Collector Current

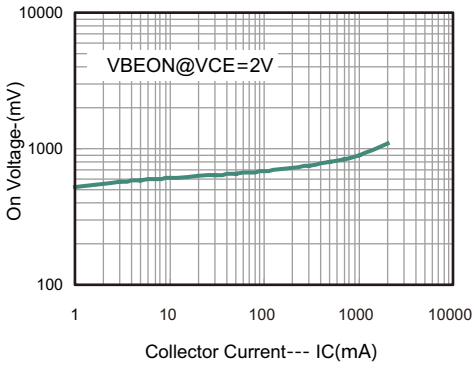


Fig 5. Typical Cut off Current Characteristics

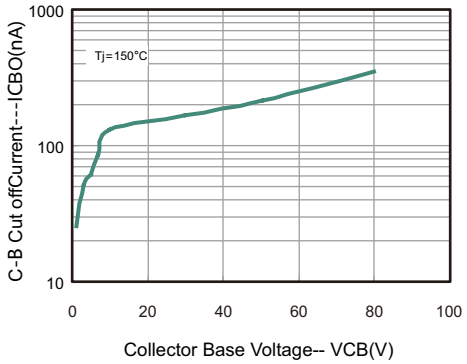


Fig 6. fT vs Collector Current

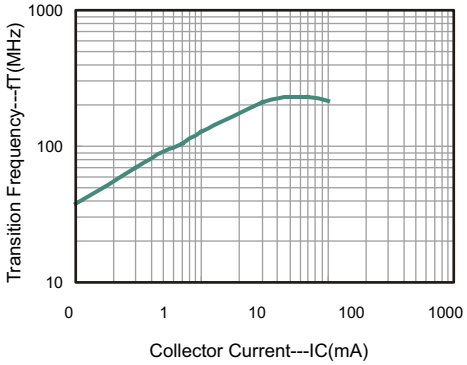
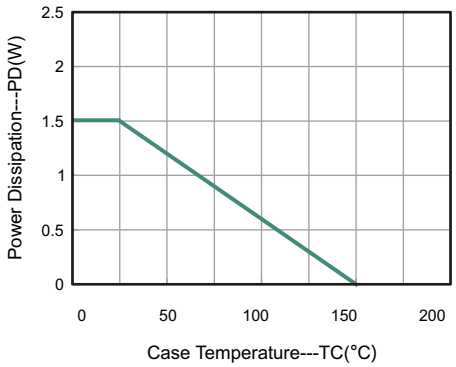
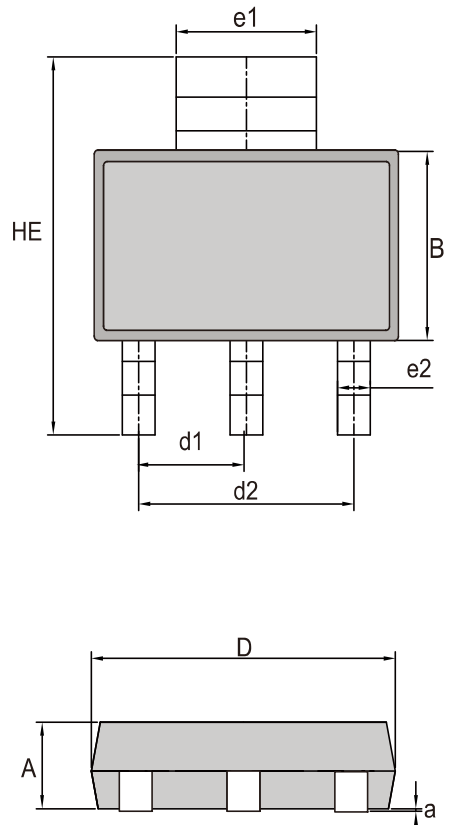


Fig 7. Power Derating Curve



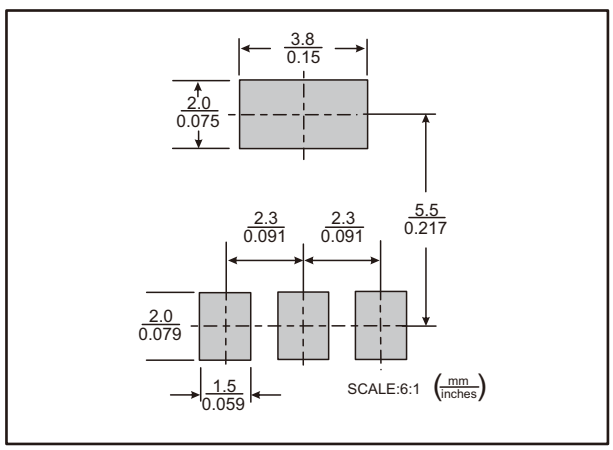
SOT-223 Package Outline Dimensions



SOT-223 mechanical data

UNIT		A	B	C	D	d1	d2	e1	e2	HE	L	a	L1	ALL
mm	MAX	1.65	3.7	0.254	6.6	2.3	4.6	3.1	0.84	7.20	1.750	0.1	/	11~13°
	MIN	1.55	3.3	REF	6.4	BSC	BSC	2.9	0.66	6.80	REF	0	0.75	
mil	MAX	64.96	145.67	10.00	259.84	90.55	181.10	122.05	33.07	283.46	68.90	3.94	/	
	MIN	61.02	129.92	REF	251.97	BSC	BSC	114.17	25.98	267.72	REF	0.00	29.53	

The recommended mounting pad size



Marking

Type number	Marking code
BCP54WK	P54
BCP54WK-16	P546
BCP54WK-25	P545
BCP55WK	P55
BCP55WK-16	P556
BCP55WK-25	P555
BCP56WK	P56
BCP56WK-16	P566
BCP56WK-25	P565

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