

NPN General Purpose Transistor

1: base 2: emitter 3: collector

encapsulation mode: SOT-23

Marking code: BC817

Classification of hFE

Rank	BC817-16	BC817-25	BC817-40	BC817
Range	100-250	160-400	250-600	100-600
Marking	6A	6B	6C	6D



Maximum ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-Base Breakdown Voltage	V _{CB0}	50	V
Collector-Emitter Breakdown Voltage	V _{CE0}	45	V
Emitter-Base Breakdown Voltage	V _{EB0}	5	V
Collector Current	I _C	500	mA
Collector Power Dissipation	P _C	300	mW
Junction Temperature	T _J	-65~150	℃
Storage Temperature	T _{stg}	-65~150	℃

Electrical Characteristics (Ta 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-Base Breakdown Voltage	V _{CB0}	I _C =100uA I _E =0	50		V
Collector-Emitter Breakdown Voltage	V _{CE0}	I _C =1mA I _B =0	45		V
Emitter-Base Breakdown Voltage	V _{EB0}	I _E =100uA I _C =0	5		V
Collector Cutoff Current	I _{CB0}	V _{CB} =50V I _E =0		100	nA
Collector Cutoff Current	I _{CE0}	V _{CE} =45V I _B =0		100	nA
Emitter Cutoff Current	I _{EB0}	V _{EB} =5V I _B =0		100	nA
DC Current Gain	HFE(A)	V _{CE} =1V I _C =100mA	100	600	
	HFE(B)	V _{CE} =1V I _C =500mA	40		
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =500mA I _B =50mA		0.7	V
Collector-Base Saturation Voltage	V _{BE(sat)}	I _C =500mA I _B =50mA		1.2	V
Base-Emitter Voltage	V _{BE(on)}	I _C =500mA V _{CE} =1V		1.2	V
transition frequency	f _T	V _{CE} =5V I _C =10mA f=100MHz	100		MHz

TYPICAL CHARACTERISTICS CURVES

Fig 1: DC Current Gain vs. Collector Current

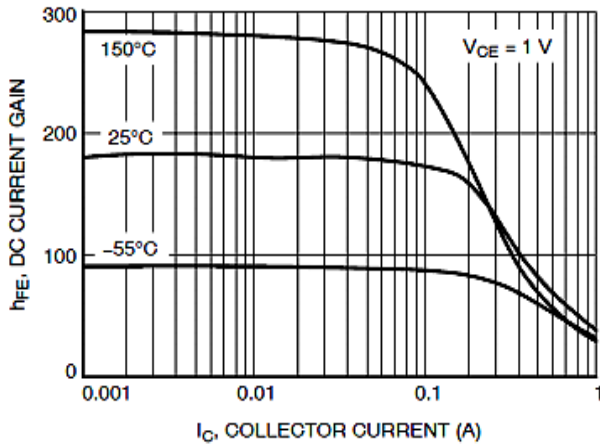


Fig 2: Collector Emitter Saturation Voltage vs. Collector Current

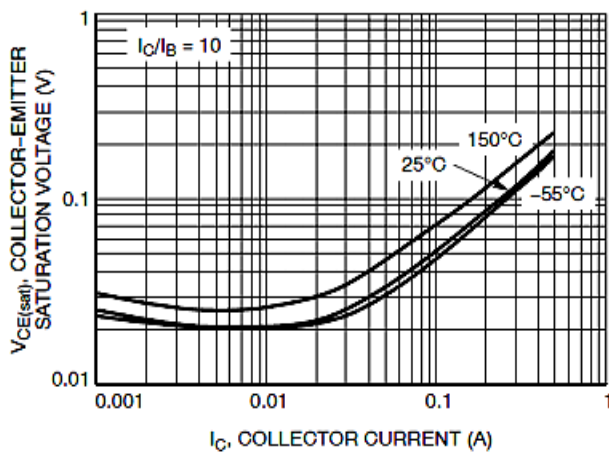


Fig 3: Base Emitter Saturation Voltage vs. Collector Current

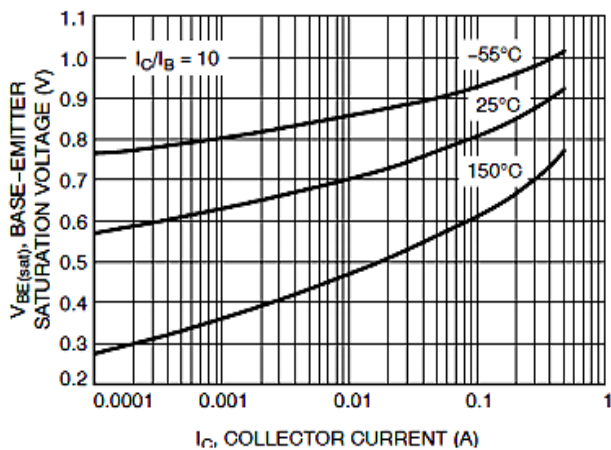


Fig 4: Base Emitter Voltage vs. Collector Current

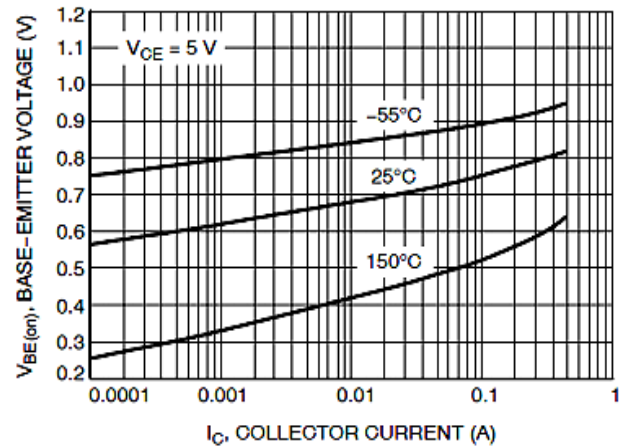


Fig 5: Current Gain Bandwidth Product vs. Collector Current

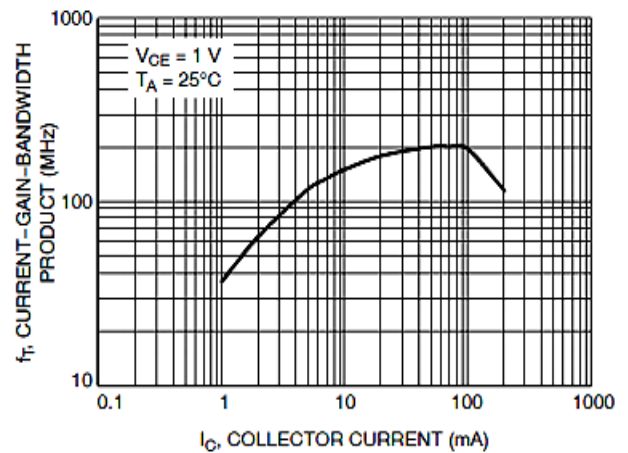
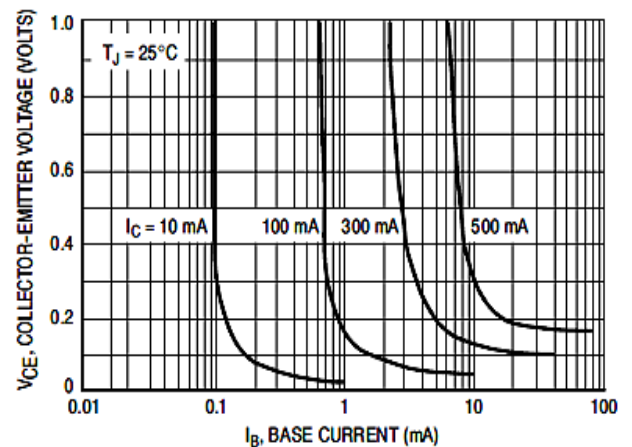


Fig 6: Saturation Region



TYPICAL CHARACTERISTICS CURVES

Fig 7: Temperature Coefficients

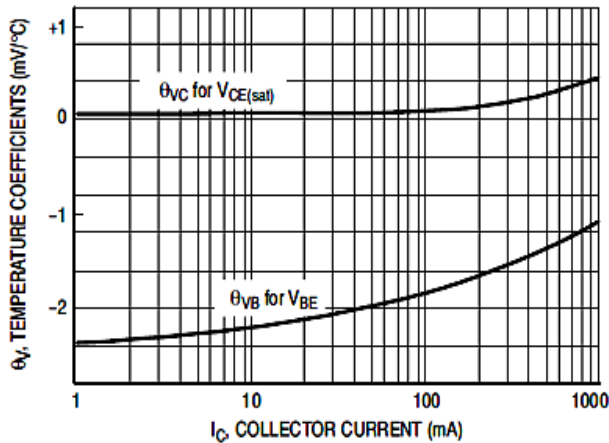


Fig 8: Capacitance

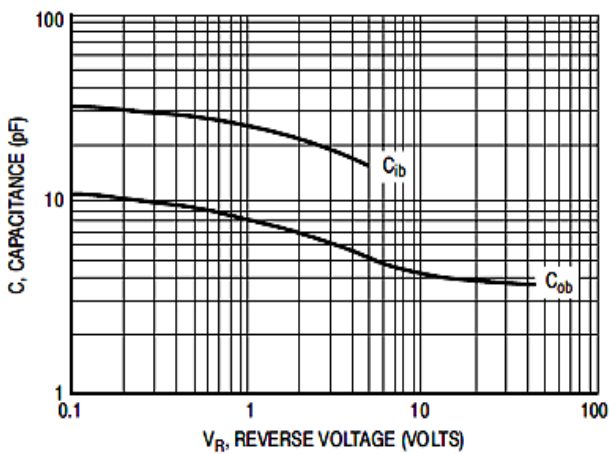


Fig 9: DC Current Gain vs. Collector

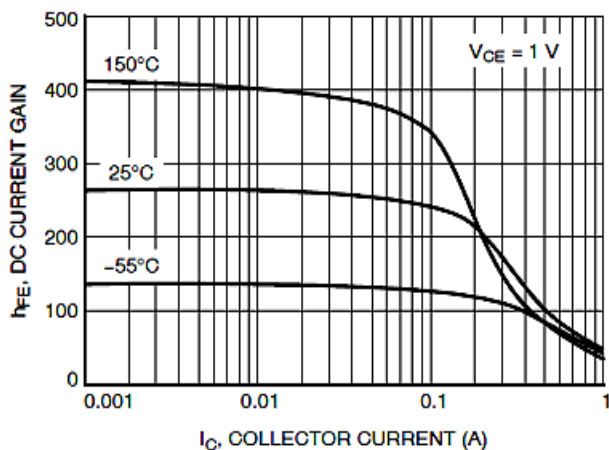


Fig 10: Collector Emitter Saturation Voltage vs. Collector Current

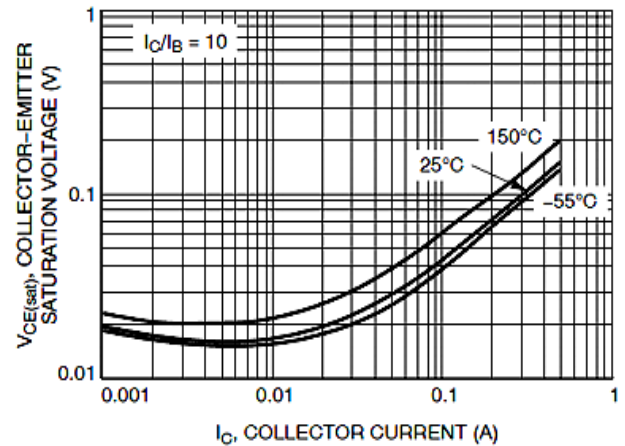


Fig 11: Base Emitter Saturation Voltage vs. Collector Current

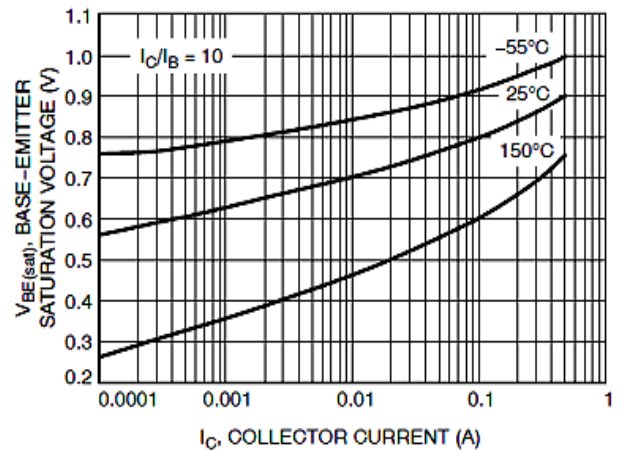
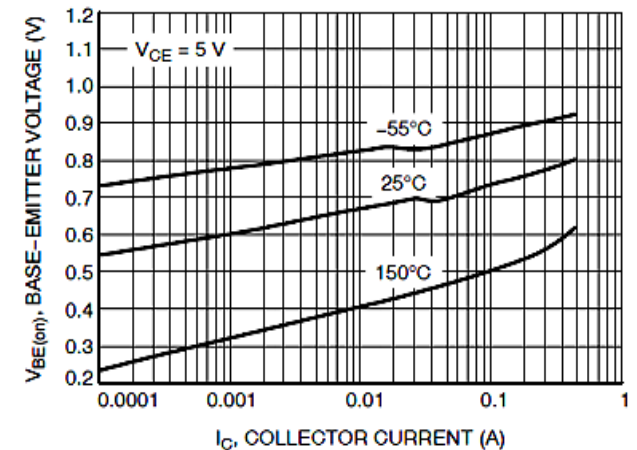


Fig 12: Base Emitter Voltage vs. Collector Current



TYPICAL CHARACTERISTICS CURVES

Fig 13: Current Gain Bandwidth Product vs. Collector Current

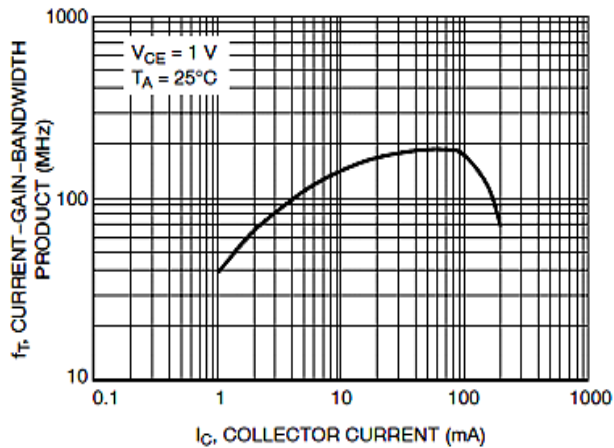


Fig 16: Capacitance

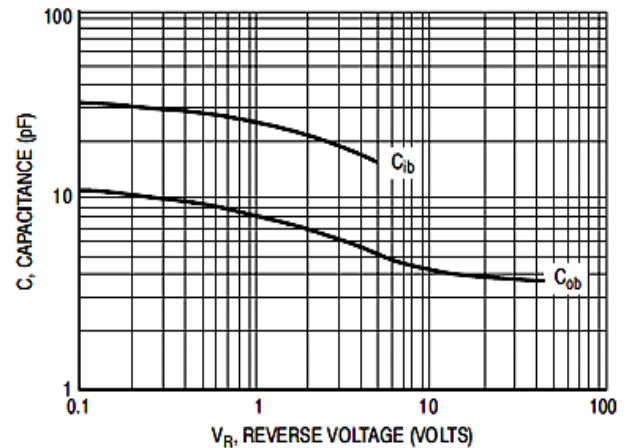


Fig 14: Saturation Region

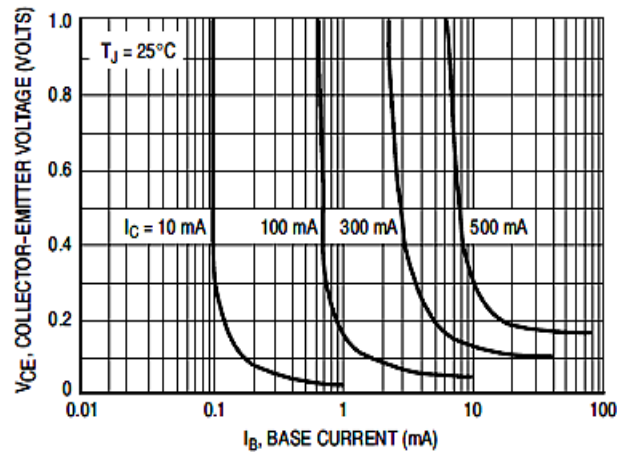


Fig 17: DC Current Gain vs. Collector Current

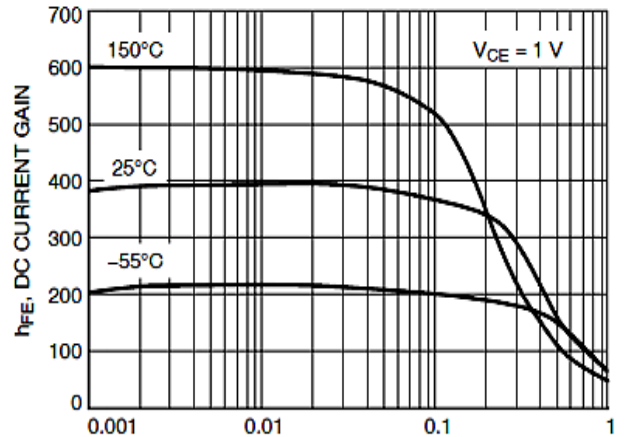


Fig 15: Temperature Coefficients

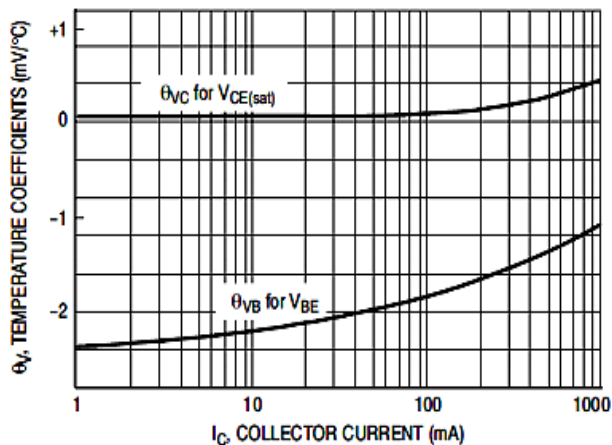
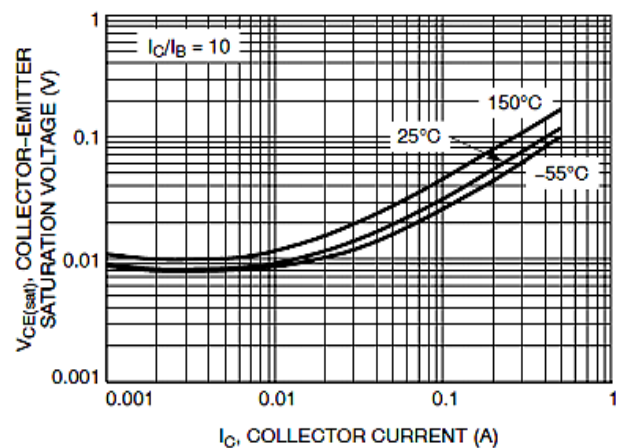


Fig 18: Collector Emitter Saturation Voltage vs. Collector Current



TYPICAL CHARACTERISTICS CURVES

Fig 19: Base Emitter Saturation Voltage vs. Collector Current

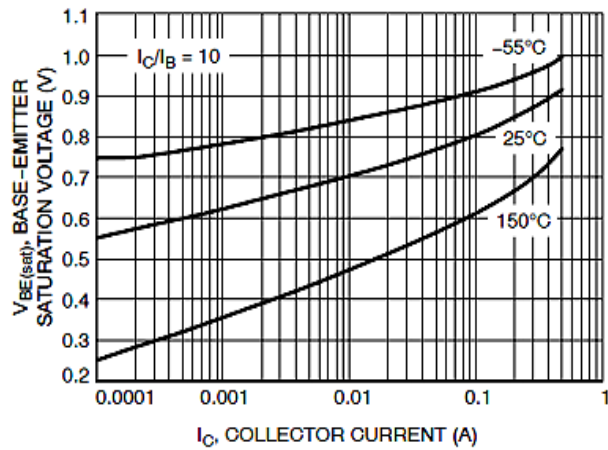


Fig 20: Base Emitter Voltage vs. Collector Current

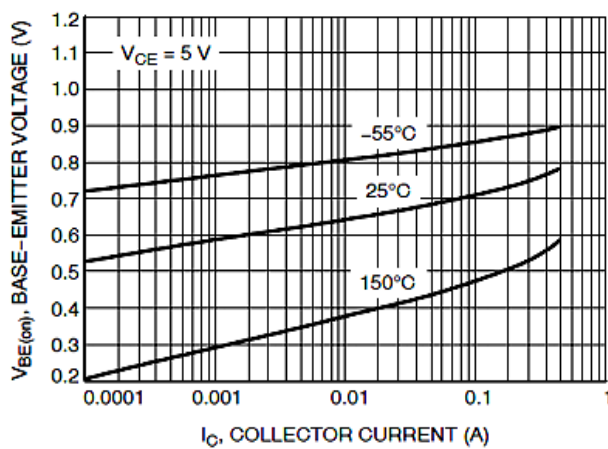


Fig 21: Current Gain Bandwidth Product vs. Collector Current

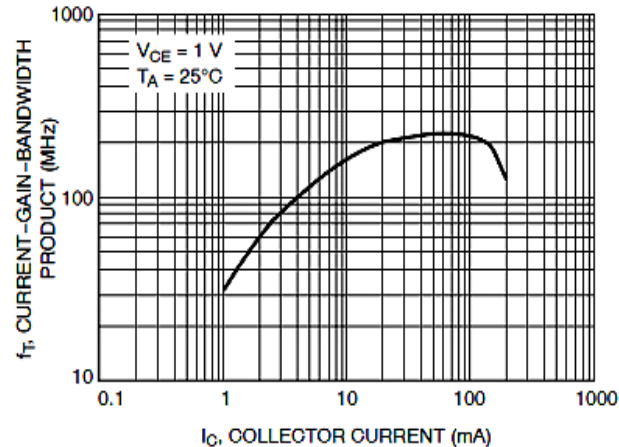


Fig 22: Saturation Region

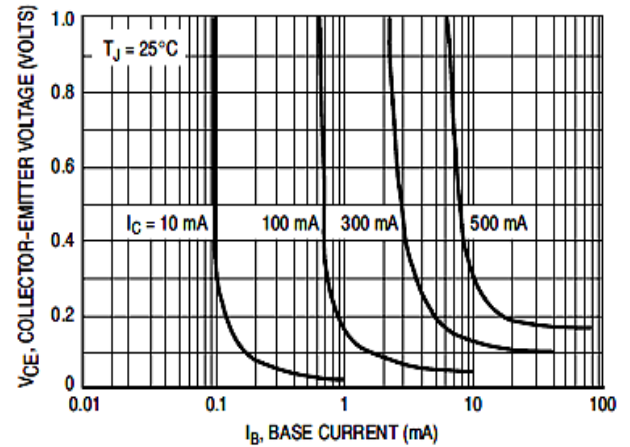


Fig 23: Temperature Coefficients

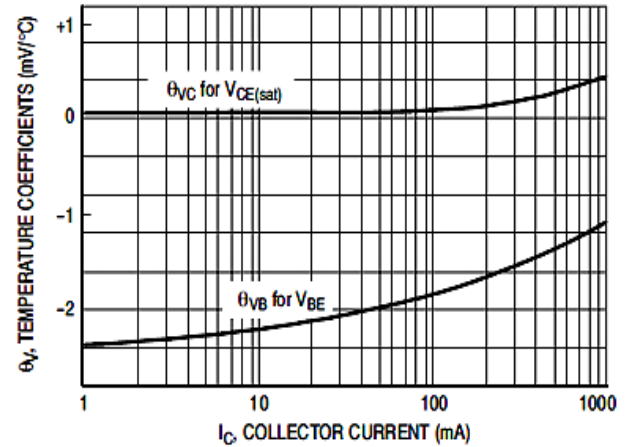
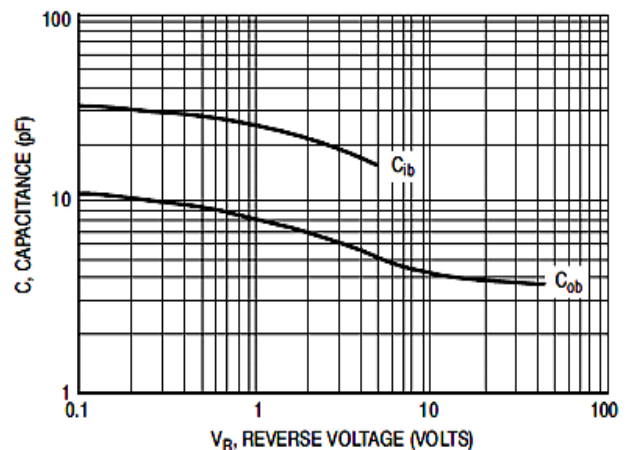
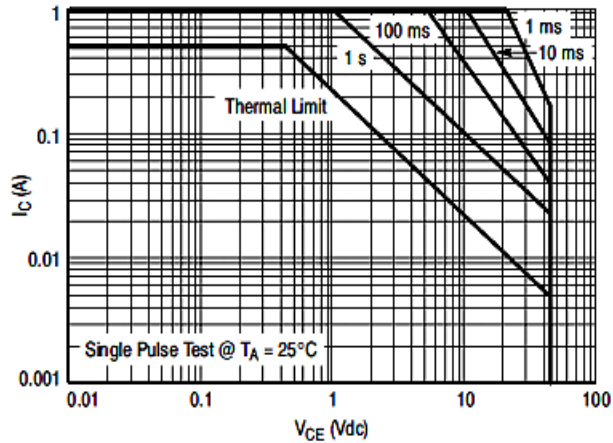


Fig 24: Capacitance



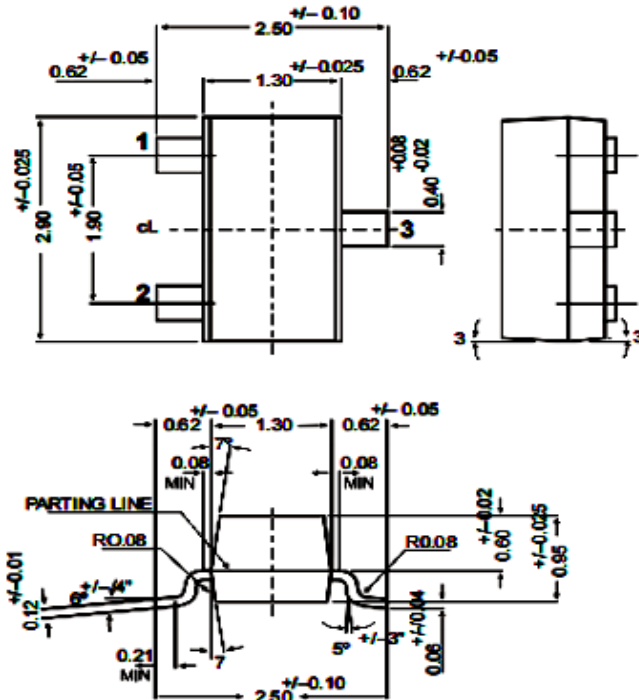
TYPICAL CHARACTERISTICS CURVES

Fig 25: Safe Operating Area



PACKAGE DETAILS

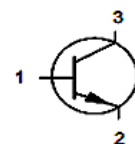
SOT-23 SMD Plastic Package



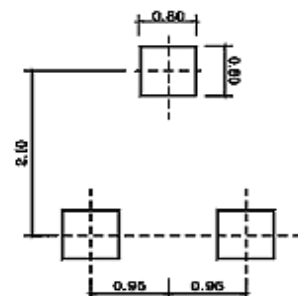
All Dimensions are in mm

Pin Configuration

1. Base
2. Emitter
3. Collector



SOT-23 Suggested Pad Layout



REEL TAPING SPECIFICATIONS FOR SURFACE MOUNT DEVICES-SOT-23

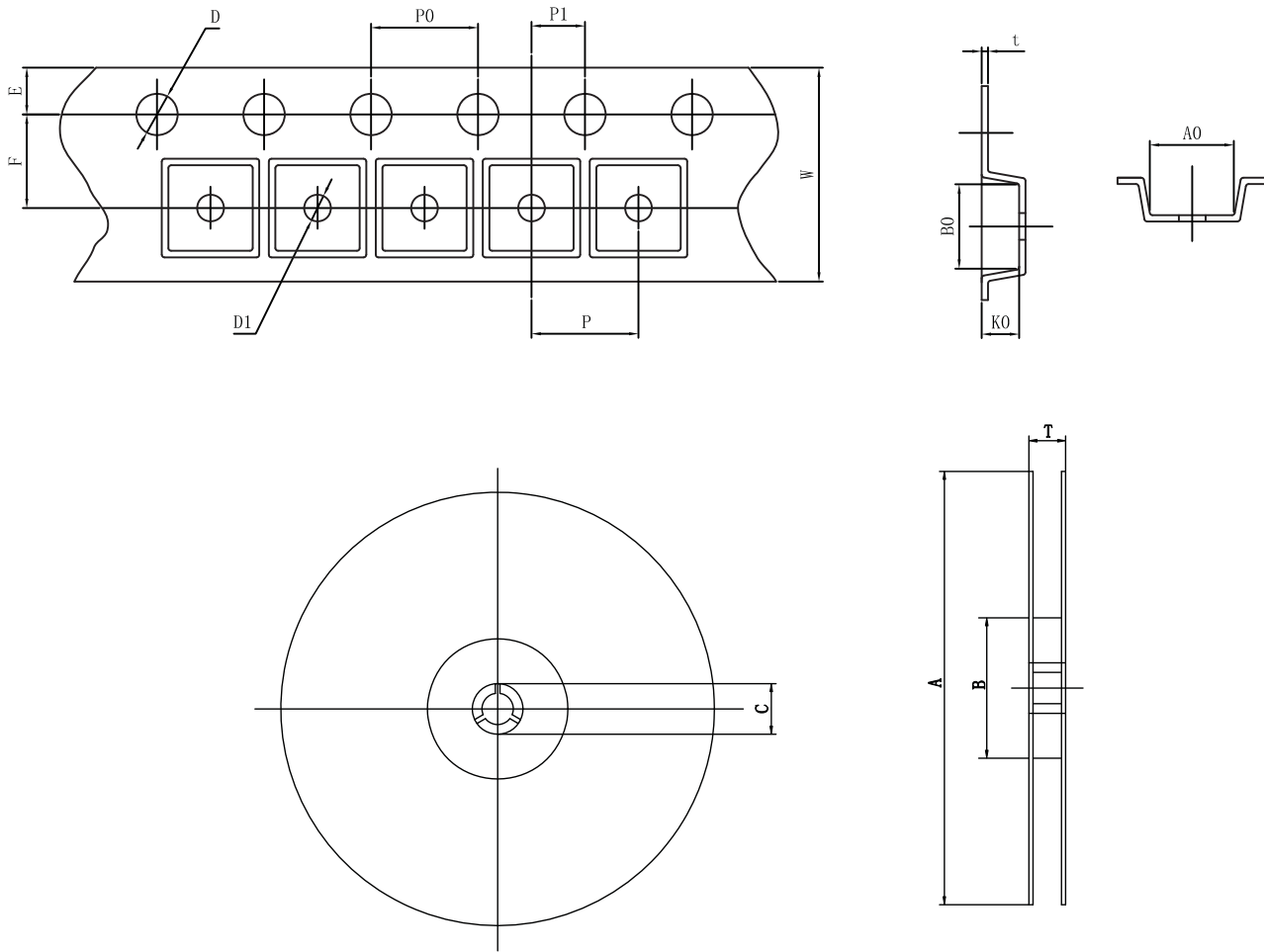


Fig.: Configuration of SOT-23 TAPING

ITEM	SYMBOL	SPECIFICATIONS (mm)	SPECIFICATIONS (inch)
Carrier width	A0	3.25 Max.	0.128 Max.
Carrier length	B0	2.87 Max.	0.113 Max.
Carrier depth	K0	1.32 Max.	0.052 Max.
Sprocket hole	D	1.5+0.1/0	0.059+0.004/0
Reel outside diameter	A	178±1.0	7.009±0.039
Reel inner diameter	B	54 Min.	2.126 Min.
Feed hole diameter	C	13.0±0.20	0.512±0.008
Stroke hole position	E	1.75±0.10	0.069±0.004
Punch hole position	F	3.5±0.05	0.138±0.002
Punch hole pitch	P	4.0±0.10	0.158±0.004
Sprocket hole pitch	P0	4.0±0.10	0.158±0.004
Embossment center	P1	2.0±0.05	0.079±0.002
Overall tape thickness	t	0.242 Max.	0.010 Max.
Tape width	W	8.0+0.3/-0.1	0.315+0.012/-0.004
Reel width	T	12.5 Max.	0.492 Max.
Punch hole diameter	D1	1.05 Max.	0.041 Max.

Note : Devices are packed in accordance with EIA standard RS-481-A and specification given above. Available only for SOT-23 devices.

PACKAGING OF DIODE

REEL PACK

PACKAGE	PACKING CODE	REEL (EA)	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SOT-23/-3L	-T	3,000	---	---	178	438*438*220	180,000	---

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