

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	VCBO	50	V
Collector-Emitter Breakdown Voltage	VCEO	45	V
Emitter-Base Breakdown Voltage	VEBO	5	V
Collector Current	IC	500	mA
Collector Power Dissipation	Pc	300	mW
Junction Temperature	TJ	-65~150	℃
Storage Temperature	Tstg	-65~150	℃

Electrical Characteristics (Ta 25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Collector-Base Breakdown Voltage	VCBO	IC=100uA IE=0	50		V
Collector-Emitter Breakdown Voltage	VCEO	IC=1mA IB=0	45		V
Emitter-Base Breakdown Voltage	VEBO	IE=100uA IC=0	5		V
Collector Cutoff Current	ICBO	VCB=50V IE=0		100	nA
Collector Cutoff Current	ICEO	VCE=45V IB=0		100	nA
Emitter Cutoff Current	IEBO	VEB=5V IB=0		100	nA
DC Current Gain	HFE(A)	VCE=1V IC=100mA	100	600	
	HFE(B)	VCE=1V IC=500mA	40		
Collector-Emitter Saturation Voltage	VCE(sat)	IC=500mA IB=50mA		0.7	V
Collector-Base Saturation Voltage	VBE(sat)	IC=500mA IB=50mA		1.2	V
Base-Emitter Voltage	VBE(on)	IC=500mA VCE=1V		1.2	V
transition frequency	fT	VCE=5V IC=10mA f=100MHz	100		MHz

TYPICAL CHARACTERISTICS CURVES

Fig 1: DC Current Gain vs. Collector Current

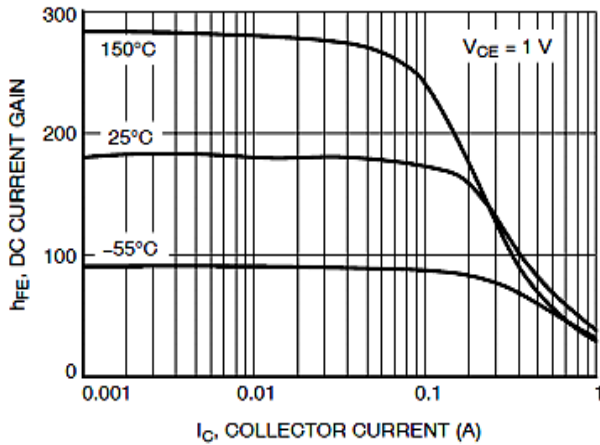


Fig 2: Collector Emitter Saturation Voltage vs. Collector Current

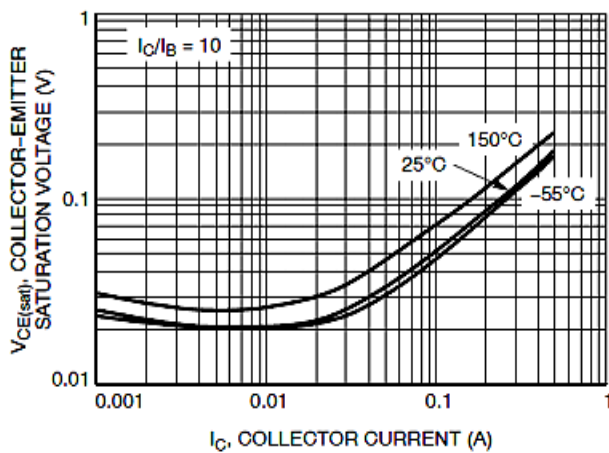


Fig 3: Base Emitter Saturation Voltage vs. Collector Current

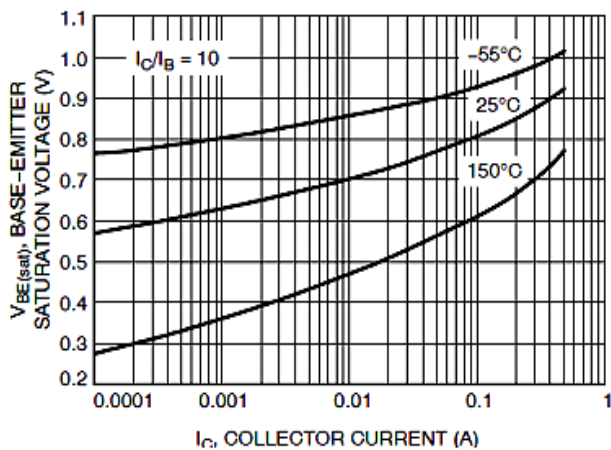


Fig 4: Base Emitter Voltage vs. Collector Current

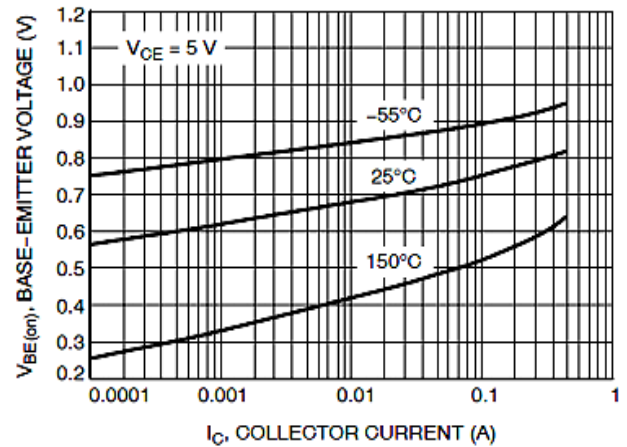


Fig 5: Current Gain Bandwidth Product vs. Collector Current

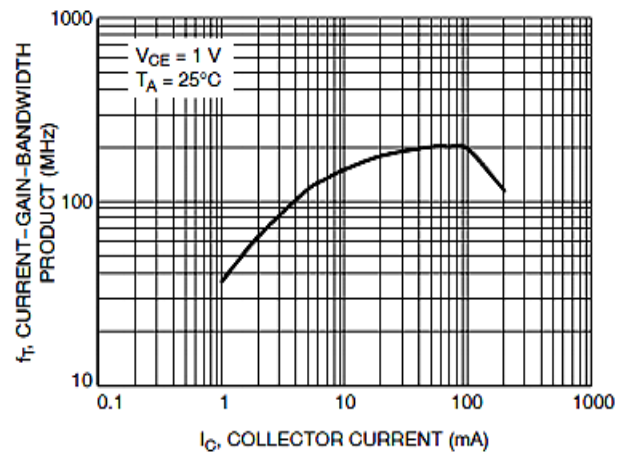
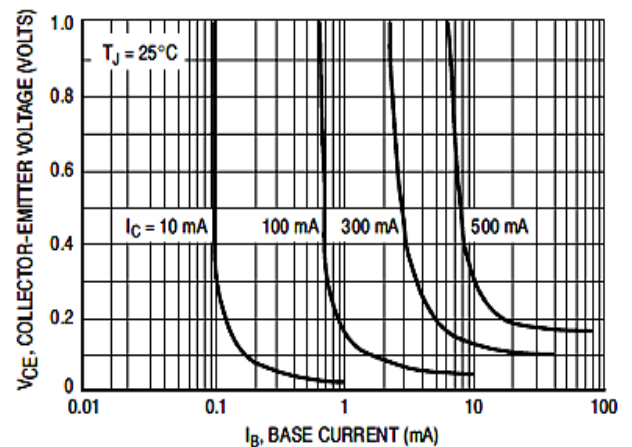


Fig 6: Saturation Region



TYPICAL CHARACTERISTICS CURVES

Fig 7: Temperature Coefficients

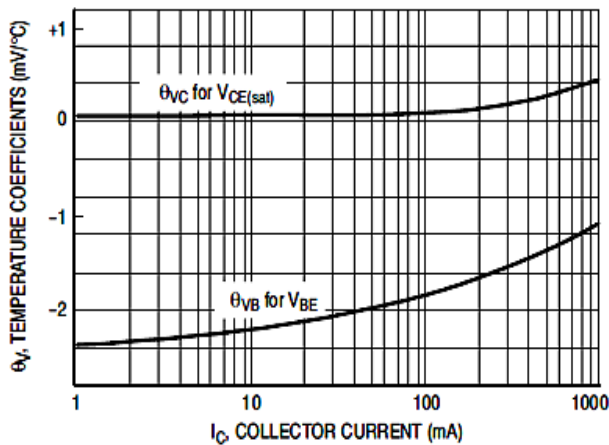


Fig 8: Capacitance

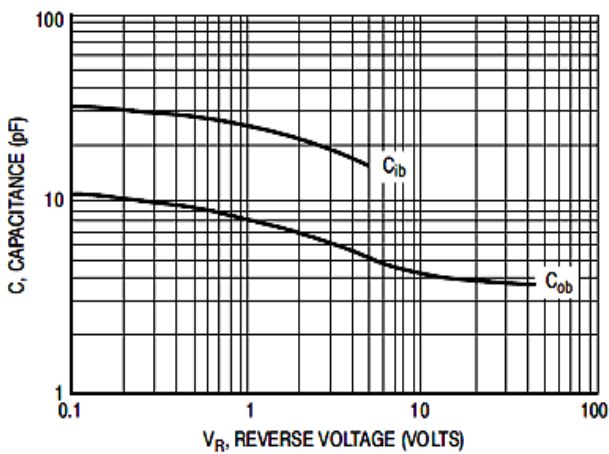


Fig 9: DC Current Gain vs. Collector

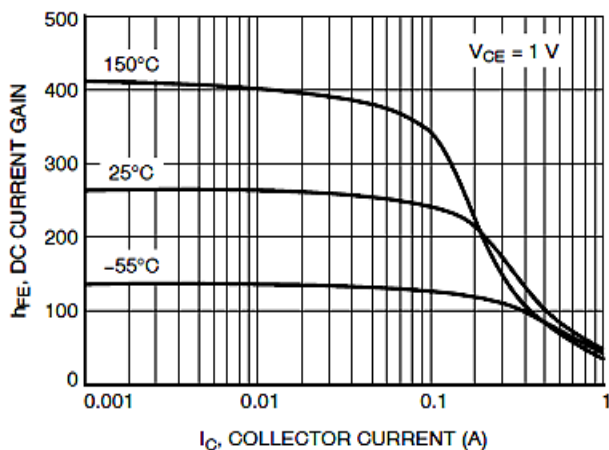


Fig 10: Collector Emitter Saturation Voltage vs. Collector Current

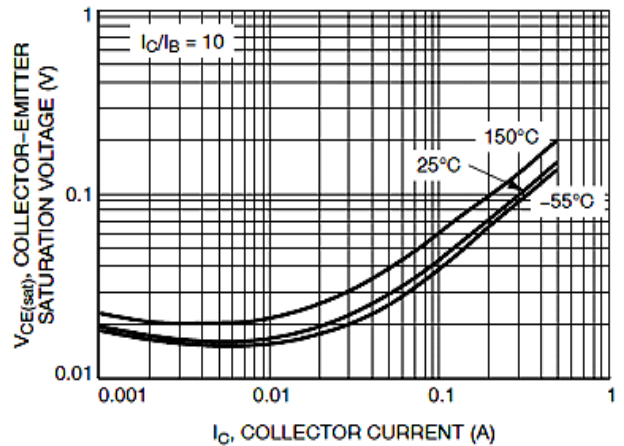


Fig 11: Base Emitter Saturation Voltage vs. Collector Current

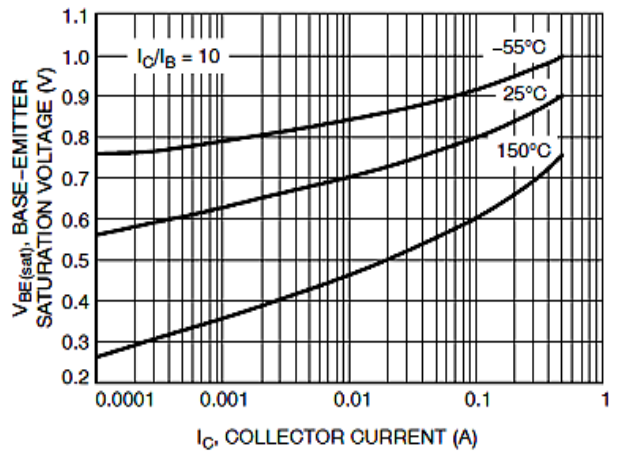
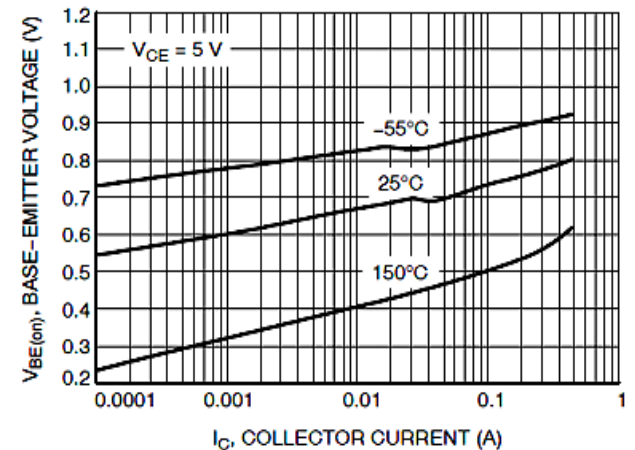


Fig 12: Base Emitter Voltage vs. Collector Current



TYPICAL CHARACTERISTICS CURVES

Fig 13: Current Gain Bandwidth Product vs. Collector Current

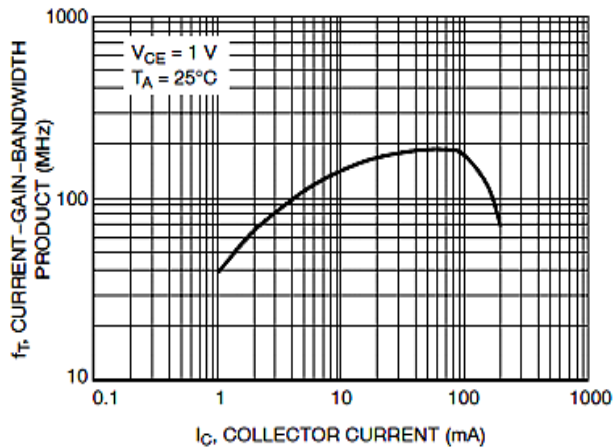


Fig 16: Capacitance

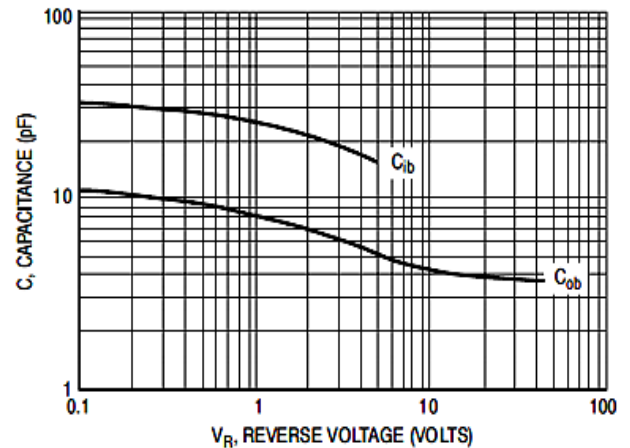


Fig 14: Saturation Region

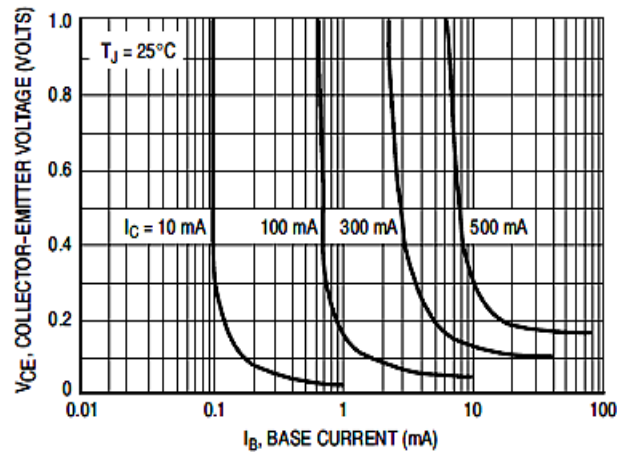


Fig 17: DC Current Gain vs. Collector Current

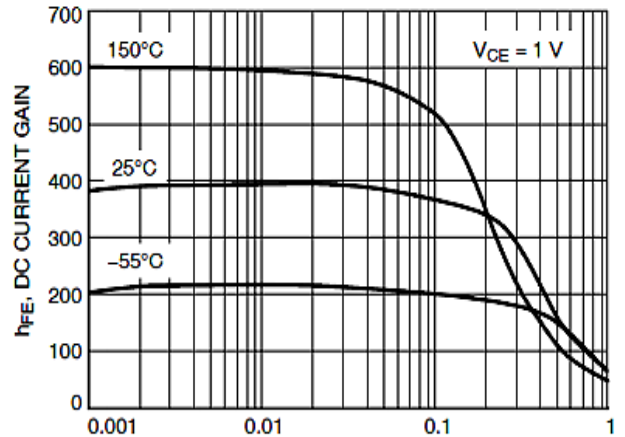


Fig 15: Temperature Coefficients

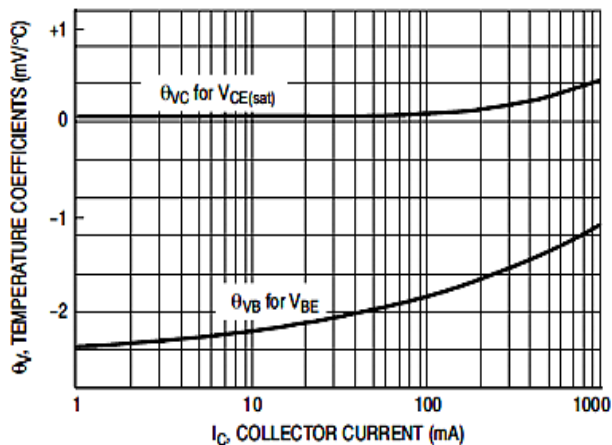
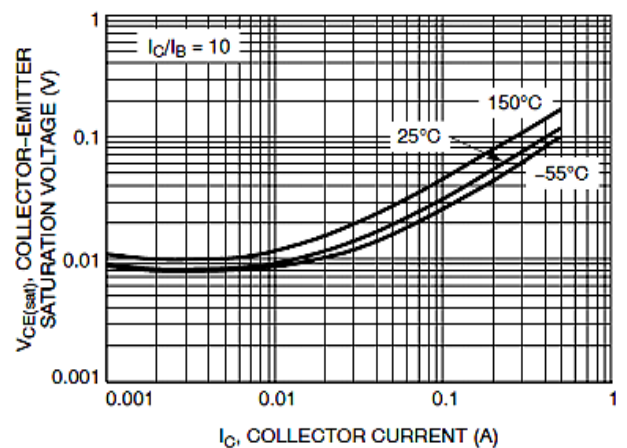


Fig 18: Collector Emitter Saturation Voltage vs. Collector Current



TYPICAL CHARACTERISTICS CURVES

Fig 19: Base Emitter Saturation Voltage vs. Collector Current

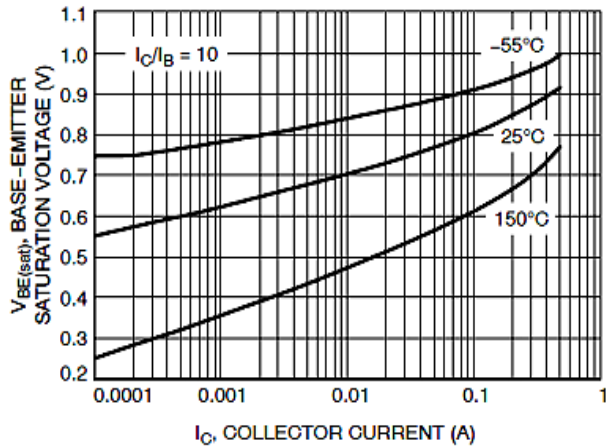


Fig 20: Base Emitter Voltage vs. Collector Current

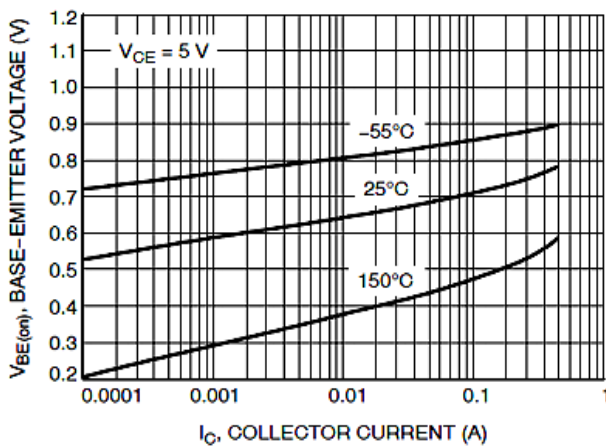


Fig 21: Current Gain Bandwidth Product vs. Collector Current

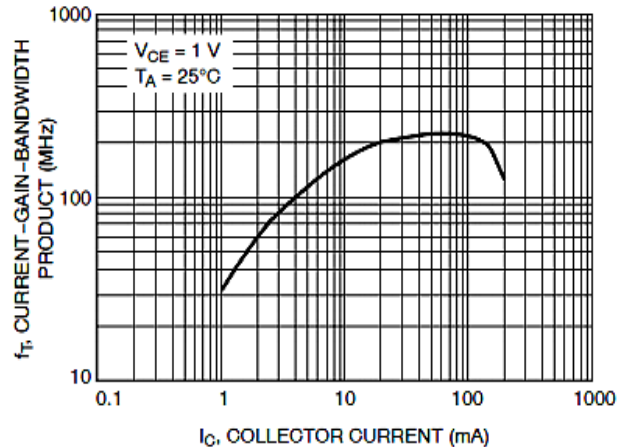


Fig 22: Saturation Region

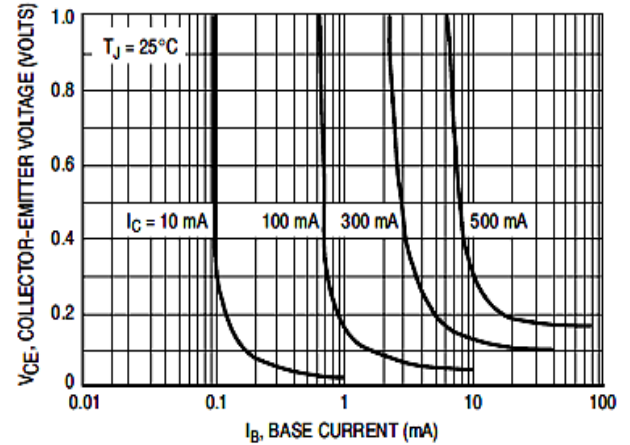


Fig 23: Temperature Coefficients

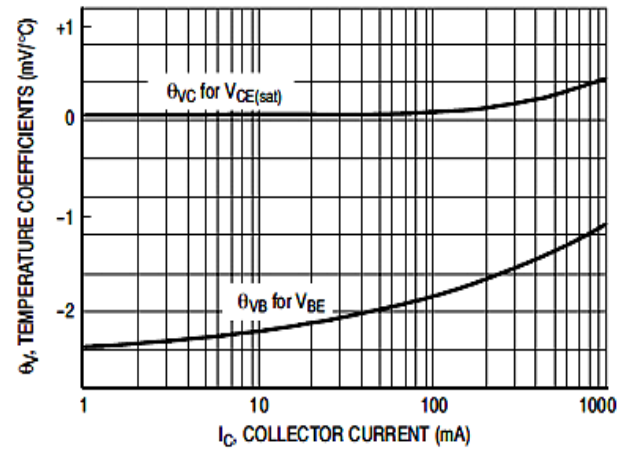
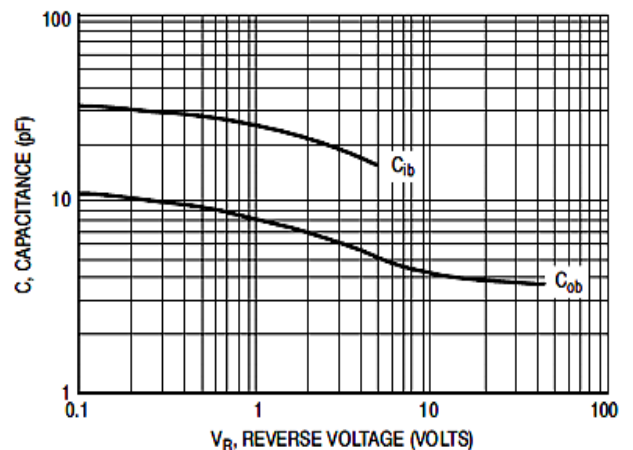
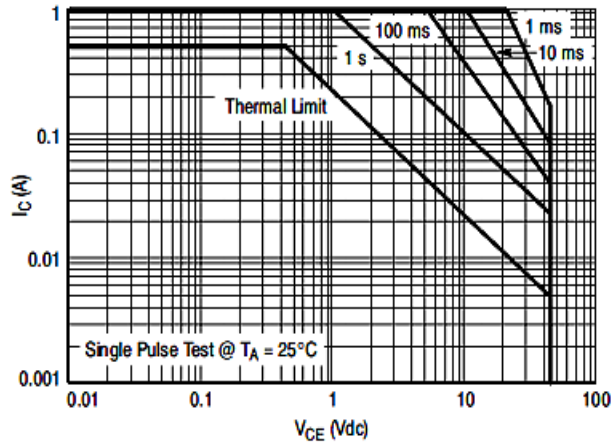


Fig 24: Capacitance



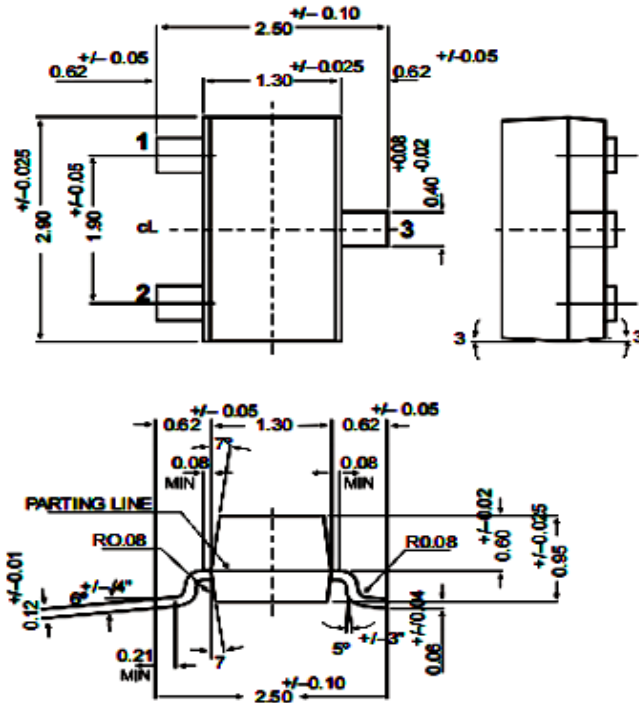
TYPICAL CHARACTERISTICS CURVES

Fig 25: Safe Operating Area



PACKAGE DETAILS

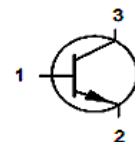
SOT-23 SMD Plastic Package



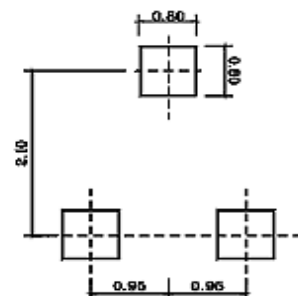
All Dimensions are in mm

Pin Configuration

1. Base
2. Emitter
3. Collector



SOT-23 Suggested Pad Layout



REEL TAPING SPECIFICATIONS FOR SURFACE MOUNT DEVICES-SOT-23

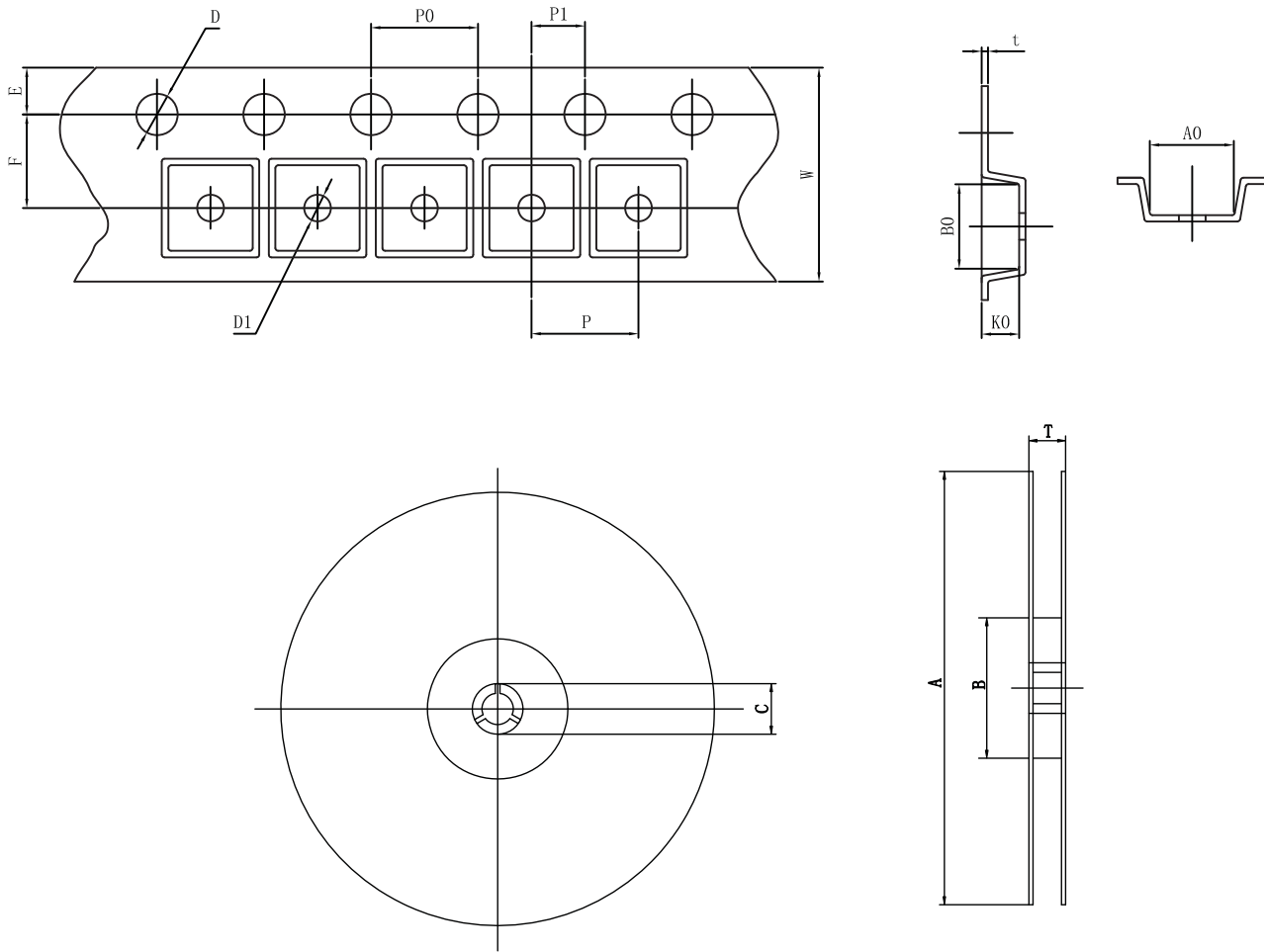


Fig.: Configuration of SOT-23 TAPING

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
Strocket 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	---

DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Rectron:](#)

[BC817-T](#)