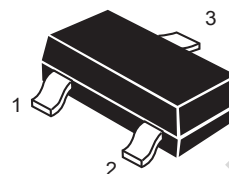


SURFACE MOUNT SMALL SIGNAL TRANSISTORS

- * Epitaxial Die Construction
- * Ideally Suited Automatic Insertion
- * 310mW Power Dissipation
- * Complementary PNP types Available(BC846-BC848)
- * For Switching and AF Amplifier Applications

Package:SOT-23



ABSOLUTE MAXIMUM RATINGS at Ta=25°C

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage BC8 56 BC857 BC858	Vcbo	-80 -50 -30	V
Collector-Emitter Voltage BC8 56 BC857 BC858	Vceo	-65 -45 -30	V
Emitter-Base Voltage BC8 56 BC857 BC858	Vebo	-5.0 -5.0 -5.0	V
Collector Current	Ic	-100	mA
Collector Dissipation Ta=25°C*	P _D	310	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-65-150	°C

PIN:	1	2	3
STYLE			
NO.1	B	E	C

ELECTRICAL CHARACTERISTICS at Ta=25°C

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Collector-Base Breakdown Voltage BC856 BC857 BC858	BVcbo	-80 -50 -30			V	Ic=-10uA Ie=0
Collector-Emitter Breakdown Voltage BC856 BC857 BC858	BVceo	-65 -45 -30			V	Ic= -10mA Ib=0
Emitter-Base Breakdown Voltage	BVebo	-5			V	Ie= -1.uA Ic=0

ELECTRICAL CHARACTERISTICS at Ta=25°C (CONTINUED)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
DC Current Gain	H _{FE}		90		1	V _{ce} =-5.0V I _c =-10uA V _{ce} =-5.0V I _c =-2.0mA
Current Gain Group A						
B			150			
C			270			
Current Gain Group A		125	180	250		
B		220	290	475		
C		420	520	800		
Collector-Emitter Saturation Voltage	V _{ce(sat)}			-300 -650	mV mV	I _c = -10mA I _b = -0.5mA I _c = -100mA I _b = -5.0mA
Base-Emitter Saturation Voltage	V _{be(sat)}		-700 -900		mV	I _c = -10mA I _b = -0.5mA I _c = -100mA I _b = -5.0mA
Base-Emitter Voltage	V _{be(on)}	-600		-750 -820	mV	V _{ce} = -5.0V I _c = -2.0mA V _{ce} = -5.0V I _c = -10mA
Output Capacitance	C _{ob}		3.5	6.0	PF	V _{cb} = -10V f=1MHz
Gain Bandwidth Product	f _T		100		MHz	V _{ce} =-5V I _c =-10mA f=100MHz
Noise Figure	NF			10	dB	V _{ce} = -5V I _c = -200uA R _s =2KΩ f=1MHz Δf=200Hz

* Total Device Dissipation : FR=1X0.75X0.062in Board, Derate 25°C.

Pulse Test : Pulse Width ≤300uS, Duty cycle ≤2%

DEVICE MARKING:

BC856A=3A

BC856B=3B

BC857A=3E

BC857B=3F

BC857C=3G

BC858A=3J

BC858B=3K

BC858C=3L

BC857/BC858

3

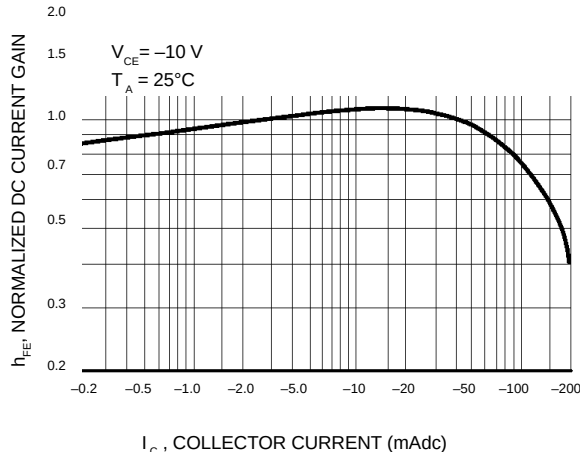


Figure 1. Normalized DC Current Gain

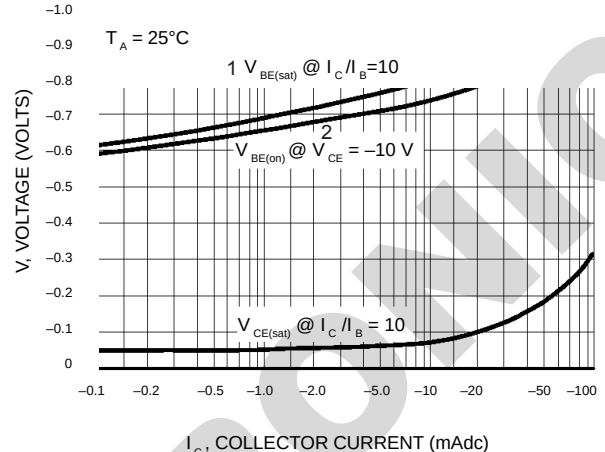


Figure 2. "Saturation" and "On" Voltages

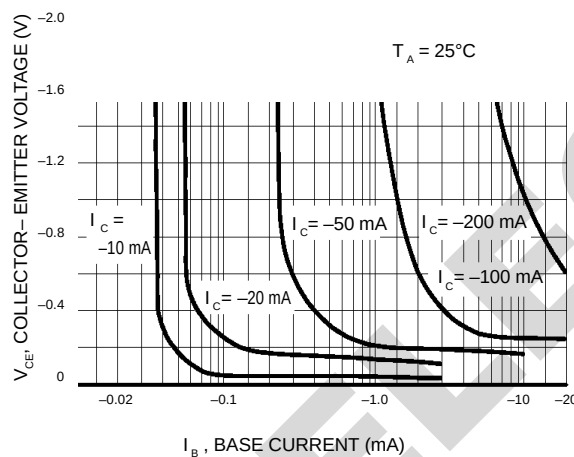


Figure 3. Collector Saturation Region

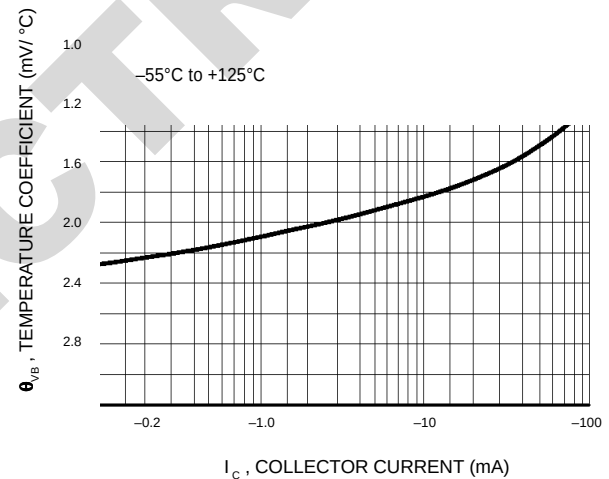


Figure 4. Base-Emitter Temperature Coefficient

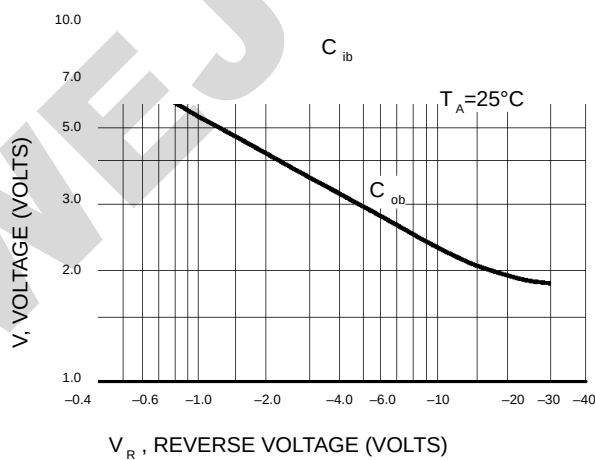


Figure 5. Capacitances

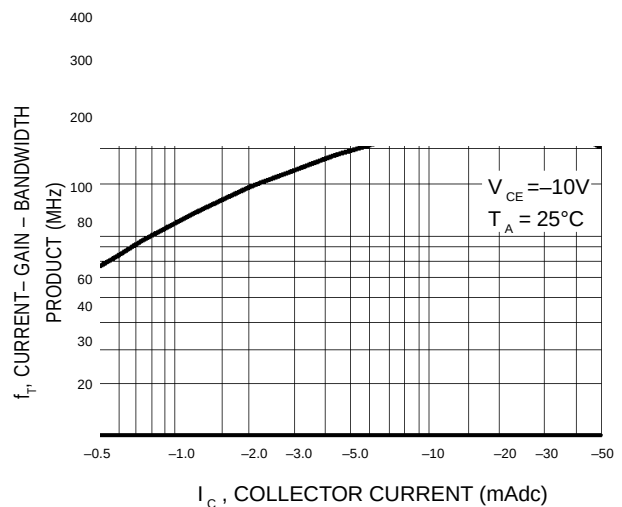
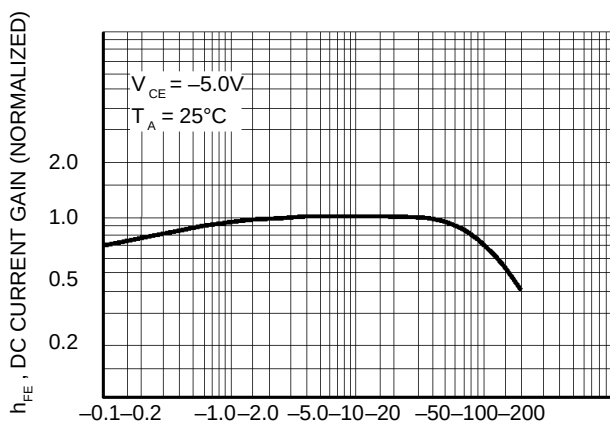
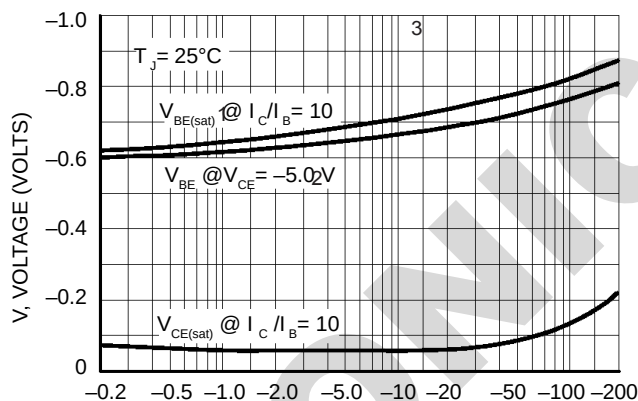


Figure 6. Current-Gain - Bandwidth Product

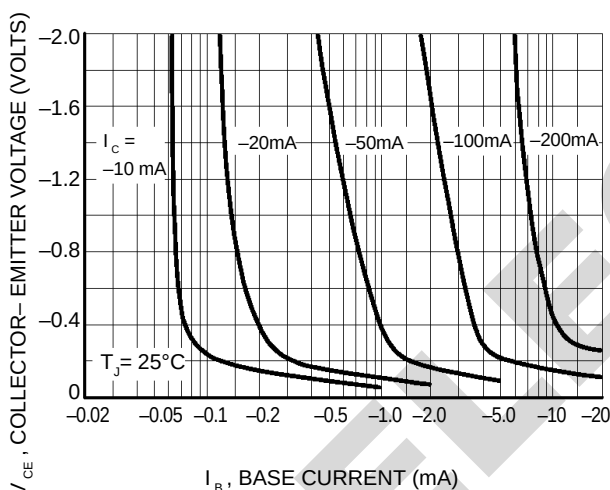
BC856



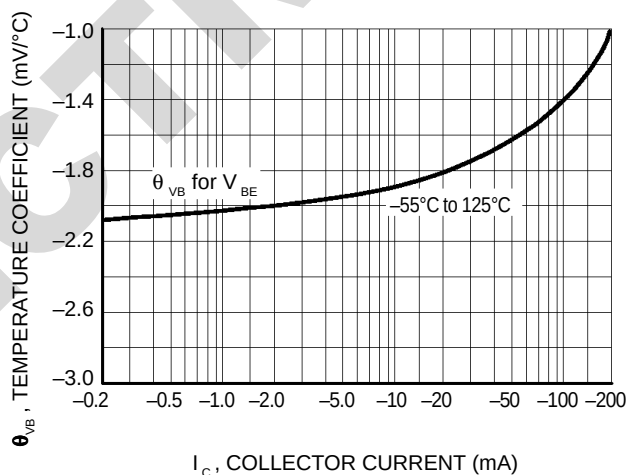
I_C , COLLECTOR CURRENT (mA)
Figure 7. DC Current Gain



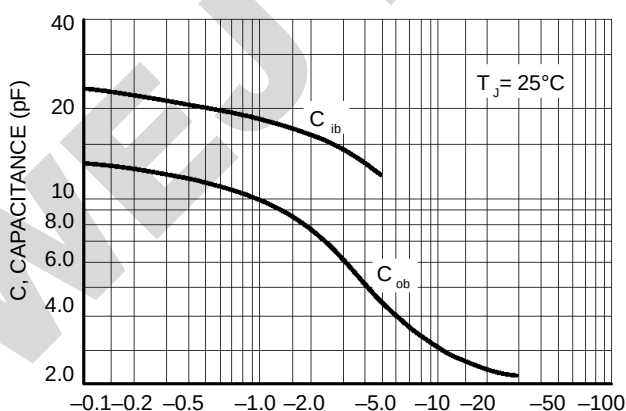
I_C , COLLECTOR CURRENT (mA)
Figure 8. "On" Voltage



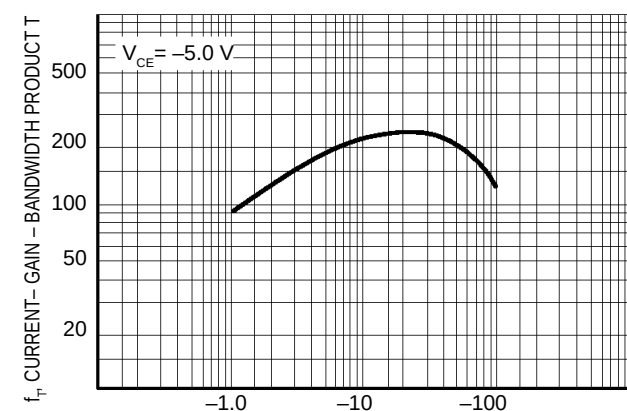
I_B , BASE CURRENT (mA)
Figure 9. Collector Saturation Region



I_C , COLLECTOR CURRENT (mA)
Figure 10. Base-Emitter Temperature Coefficient



V_R , REVERSE VOLTAGE (VOLTS)
Figure 11. Capacitance



I_C , COLLECTOR CURRENT (mA)
Figure 12. Current-Gain - Bandwidth Product

BC856A-BC858C

3

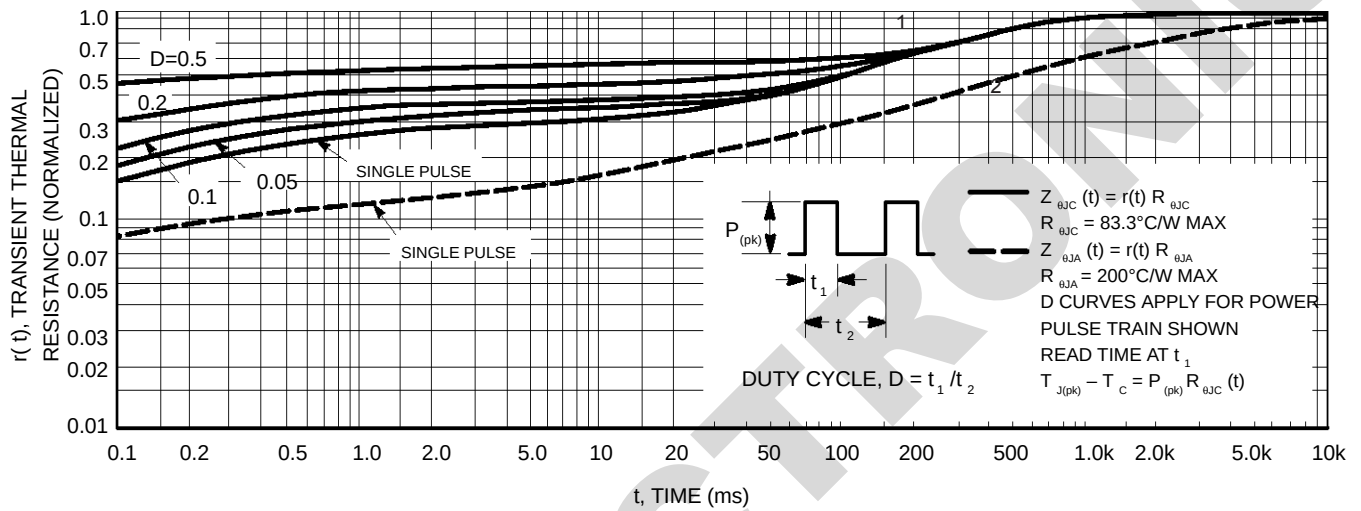


Figure 13. Thermal Response

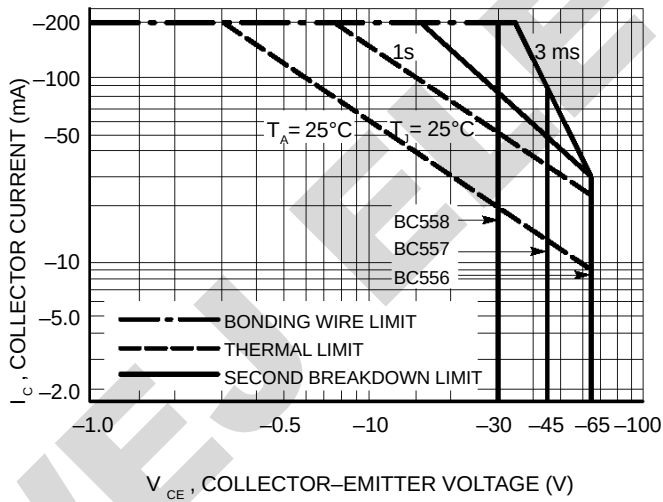
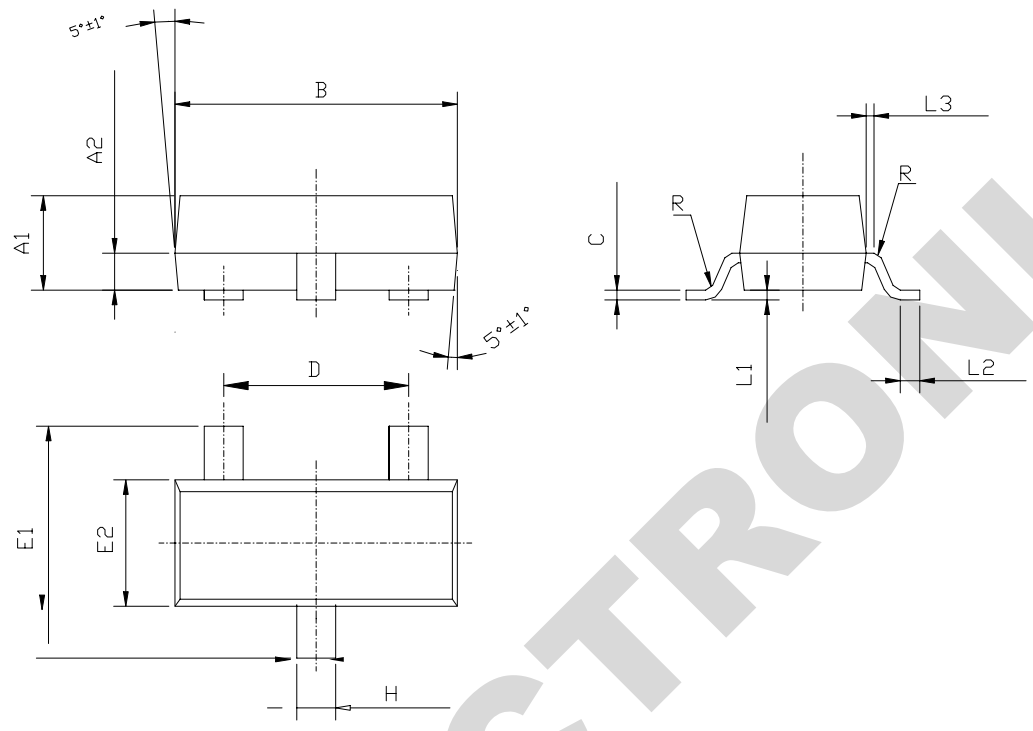
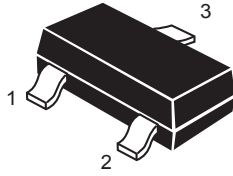


Figure 14. Active Region Safe Operating Area

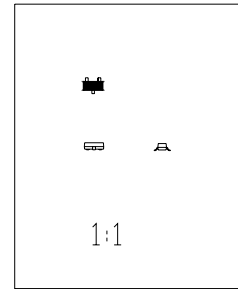
OUTSIDE DEMENSION AND INTERNAL CONFIGURATION (SOT-23)



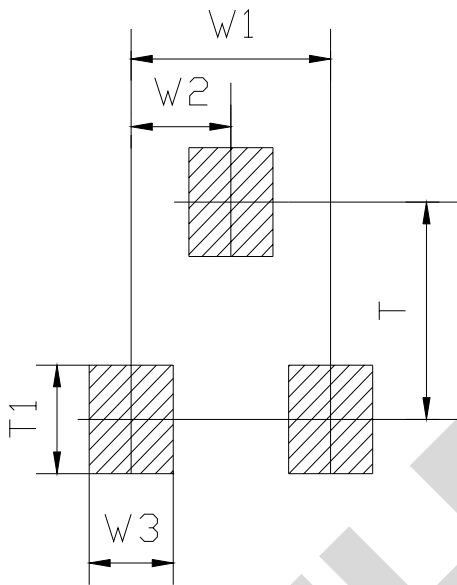
Symbol	Dimensions in Millimeters			内部结构 STYLS	管脚 PIN		
	Min	Nominal	Max		1 脚	2 脚	3 脚
A1	0.900	0.970	1.000	6	基极 BASE	发射极 EMITTER	集电极 COLLCTOR
A2	0.350	0.380	0.410				
B	2.800	2.900	3.000	8	阳极 ANODE	不连接 NO- CONNECTION	阴极 CATHODE
C	0.085	0.100	0.150				
D	1.800	1.900	2.000	9	阳极 ANODE	阳极 ANODE	阴极 CATHODE
E1	2.200	2.400	2.600				
E2	1.200	1.300	1.400	11	阳极 ANODE	阴极 CATHODE	阳极-阴极 ANODE-CATHODE
H	0.300	0.400	0.500				
L1	0.000		0.100	12	阴极 CATHODE	阴极 CATHODE	阳极 ANODE
L2	0.200						
L3	0.030	0.080	0.130	18	不连接 NO- CONNECTION	阴极 CATHODE	阳极 ANODE
R	0.080TYP						
				19	阴极 CATHODE	阳极 ANODE	阴极-阳极 CATHODE-ANODE



OUTSIDE



Scale 1:1 on letter size paper

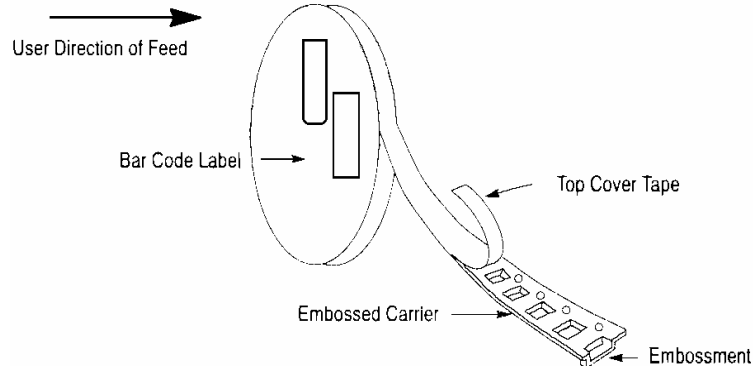


FOOTPRINTS FOR SOLDERING

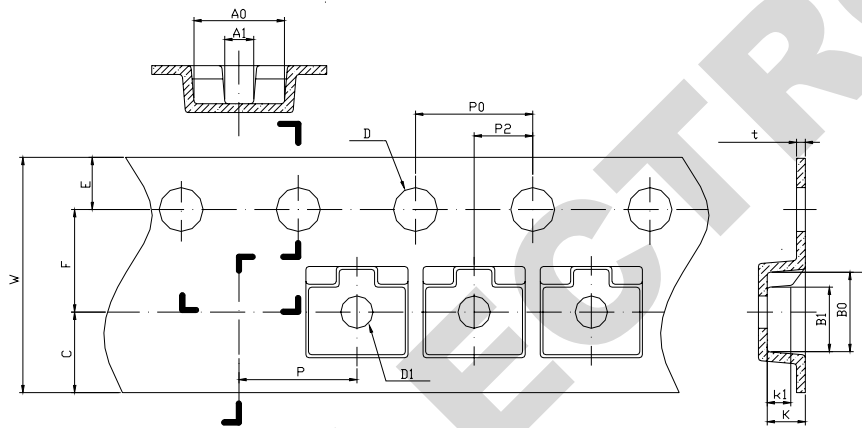
Symbol	Dimensions in Millimeters	Dimensions in Inches
	Nominal	Nominal
W1	1.900	0.0748
W2	0.950	0.0374
W3	0.800	0.0315
T	2.000	0.0787
T1	1.000	0.0394

SOT-23 TAPE AND REEL DATA

SOT-23 PACKAGING:

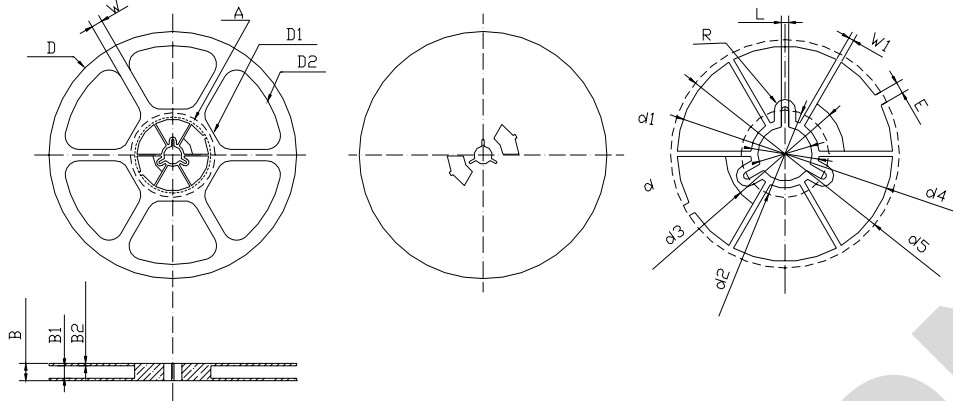


SOT-23 EMBOSSED CARRIER TAPE:



Symbol	Dimensions in Millimeters			Dimensions in Inches		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
A0	3.050	3.150	3.250	0.1201	0.1240	0.1280
A1	0.900	1.000	1.100	0.0354	0.0394	0.0433
B0	2.669	2.769	2.869	0.1051	0.1090	0.1130
B1	2.100	2.200	2.300	0.0827	0.0866	0.0906
C	2.750TYP			0.1083TYP		
D	1.500	1.500	1.600	0.0591	0.0591	0.0630
D1	0.900	1.000	1.100	0.0354	0.0394	0.0433
E	1.650	1.750	1.850	0.0650	0.0689	0.0728
F	3.450	3.500	3.550	0.1358	0.1378	0.1398
K	1.119	1.219	1.319	0.0441	0.0480	0.0519
K1	0.850TYP			0.03346TYP		
P	3.900	4.000	4.100	0.1535	0.1575	0.1614
P0	3.900	4.000	4.100	0.1535	0.1575	0.1614
P010	39.800	40.000	40.200	1.5669	1.5748	1.5827
P2	1.950	2.000	2.050	0.0768	0.0787	0.0807
t	0.216	0.229	0.242	0.0085	0.0090	0.0095
W	7.900	8.000	8.300	0.3110	0.3150	0.3268

SOT-23 REEL DATA:



Symbol	Dimensions in Millimeters			Dimensions in Inches		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
B	-	-	12.500	-	-	0.4921
B1	8.900	9.000	9.100	0.3504	0.3543	0.3583
B2	1.700	1.750	1.800	0.0669	0.0689	0.0709
D	Φ177.000	Φ178.000	Φ179.000	Φ6.9685	Φ7.0079	Φ7.0472
D1	Φ67.600TYP			Φ2.6614TYP		
D2	Φ157.600TYP			Φ6.2047 TYP		
d	Φ12.800	Φ13.000	Φ13.200	Φ0.5039	Φ0.5118	Φ0.5197
d1	Φ16.40 TYP			Φ0.6457 TYP		
d2	Φ21.000 TYP			Φ0.8268 TYP		
d3	Φ25.200 TYP			Φ0.99221TYP		
d4	Φ50.600	Φ51.600	Φ52.600	Φ1.9921	Φ2.0315	Φ2.0709
d5	Φ53.800	Φ54.800	Φ55.800	Φ2.1181	Φ2.1575	Φ2.1969
E	2.800 TYP			0.1102TYP		
L	1.750 TYP			0.0689 TYP		
R	2.575 TYP			0.1014 TYP		
W	15.000 TYP			0.5906 TYP		
W1	1.300 TYP			0.0512 TYP		