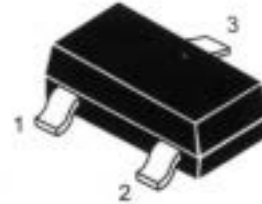


SURFACE MOUNT SMALL SIGNAL TRANSISTORS

- * 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

Characteristic	Symbol	Rating	Unit	
Collector-Base Voltage	BC856	-80	V	
	BC857	Vcbo		-50
	BC858	-30		
Collector-Emitter Voltage	BC856	-65	V	
	BC857	Vceo		-45
	BC858	-30		
Emitter-Base Voltage	BC856	-5.0	V	
	BC857	Vebo		-5.0
	BC858	-5.0		
Collector Current	Ic	-100	mA	
Collector Dissipation Ta=25 *	P _D	310	mW	
Junction Temperature	T _j	150		
Storage Temperature	T _{stg}	-65-150		

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

ELECTRICAL CHARACTERISTICS at Ta=25

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



SEMICONDUCTOR
TECHNICAL DATA

BC856A-BC858C

PNP EPITAXIAL SILICON TRANSISTOR

ELECTRICAL CHARACTERISTICS at Ta=25 (CONTINUED)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
DC Current Gain Current Gain GroupA B C Current Gain GroupA B C	H_{FE}		90			Vce=-5.0V Ic=-10uA Vce=-5.0V Ic=-2.0mA
			150			
			270			
		125	180	250		
		220	290	475		
		420	520	800		
Collector-Emitter Saturation Voltage	Vce(sat)			-300	mV	Ic= -10mA Ib= -0.5mA
				-650	mV	Ic= -100mA Ib= -5.0mA
Base-Emitter Saturation Voltage	Vbe(sat)		-700		mV	Ic= -10mA Ib= -0.5mA
			-900			Ic= -100mA Ib= -5.0mA
Base-Emitter Voltage	Vbe(on)	-600		-750 -820	mV	Vce= -5.0V Ic= -2.0mA Vce= -5.0V Ic= -10mA
Output Capacitance	Cob		3.5	6.0	PF	Vcb= -10V f=1MHz
Gain Bandwidth Product	fT		100		MHz	Vce=-5V Ic=-10mA f=100MHz
Noise Figure	NF			10	dB	Vce= -5V Ic= -200uA Rs=2K f=1MHz f=200Hz

* Total Device Dissipation : FR=1x0.75x0.062in Board,Derate 25 .

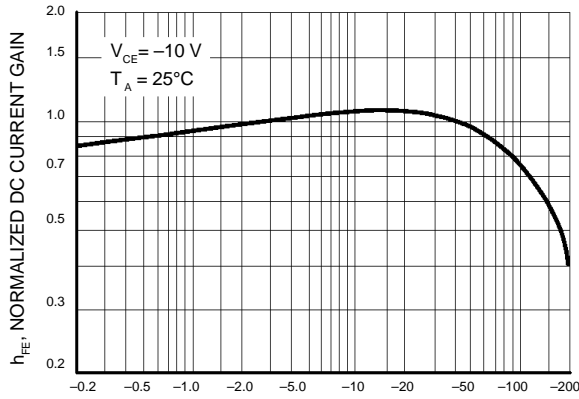
Pulse Test : Pulse Width 300uS,Duty cycle 2%

DEVICE MARKING:

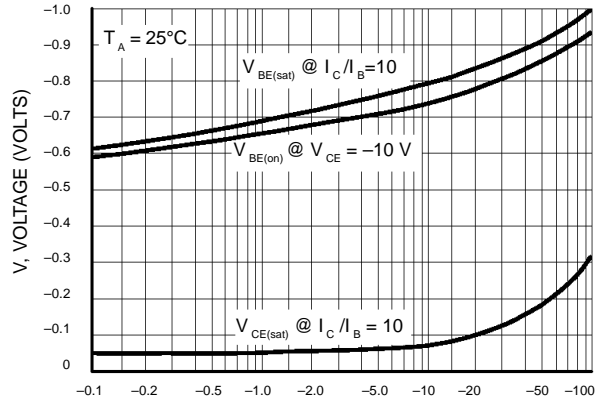
BC856A=3A
BC856B=3B
BC857A=3E
BC857B=3F
BC857C=3G
BC858A=3J
BC858B=3K
BC858C=3L



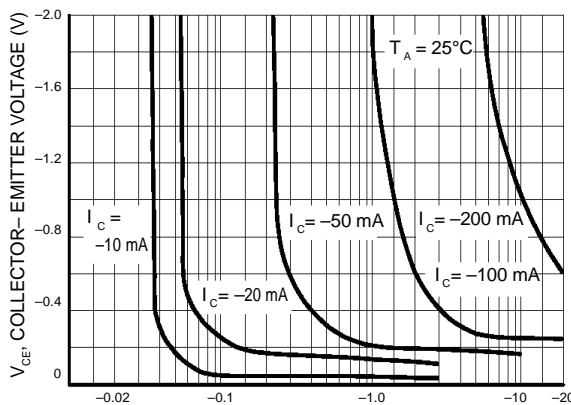
BC857/BC858



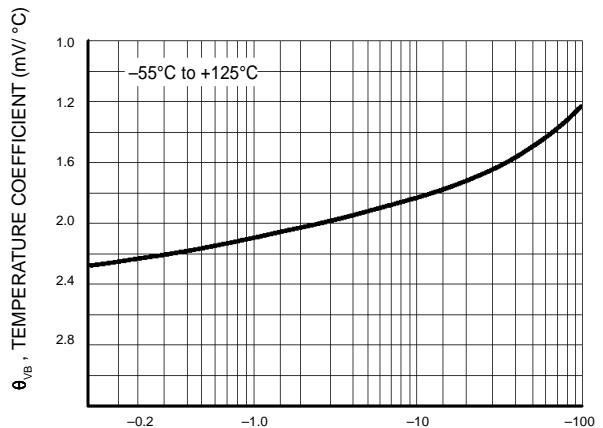
I_C , COLLECTOR CURRENT (mA)
Figure 1. Normalized DC Current Gain



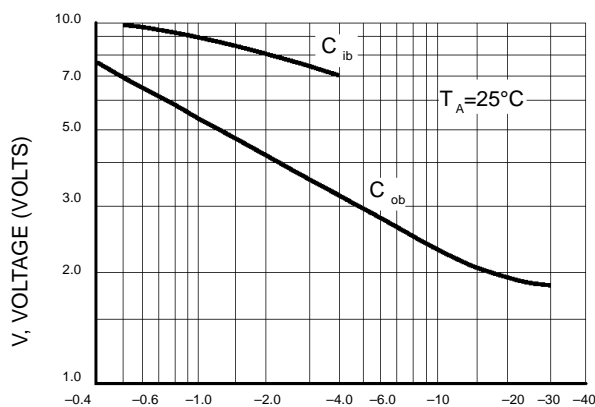
I_C , COLLECTOR CURRENT (mA)
Figure 2. "Saturation" and "On" Voltages



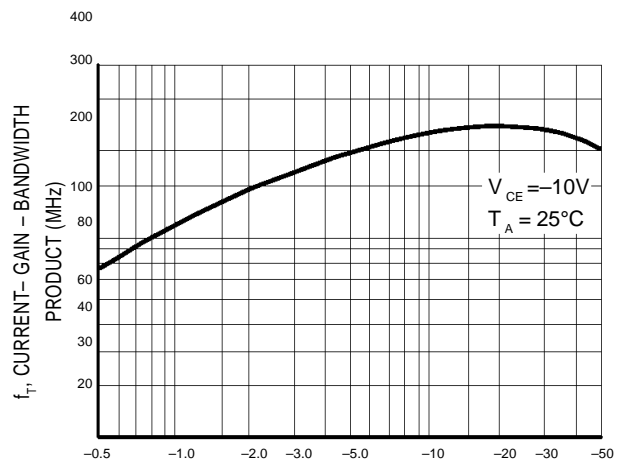
I_B , BASE CURRENT (mA)
Figure 3. Collector Saturation Region



I_C , COLLECTOR CURRENT (mA)
Figure 4. Base-Emitter Temperature Coefficient

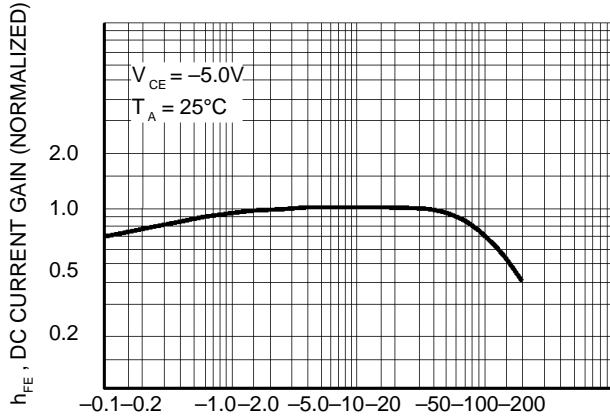


V_R , REVERSE VOLTAGE (VOLTS)
Figure 5. Capacitances

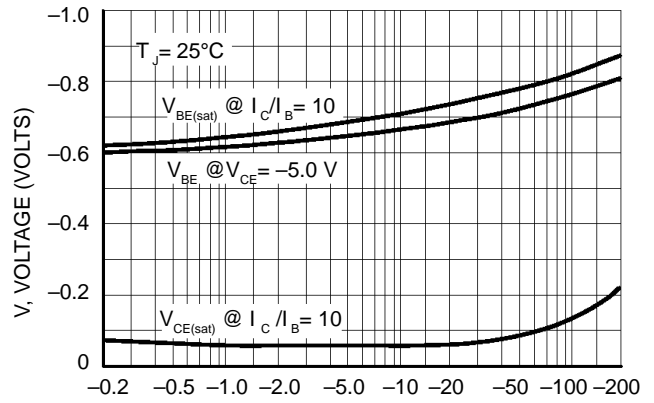


I_C , COLLECTOR CURRENT (mA)
Figure 6. Current-Gain - Bandwidth Product

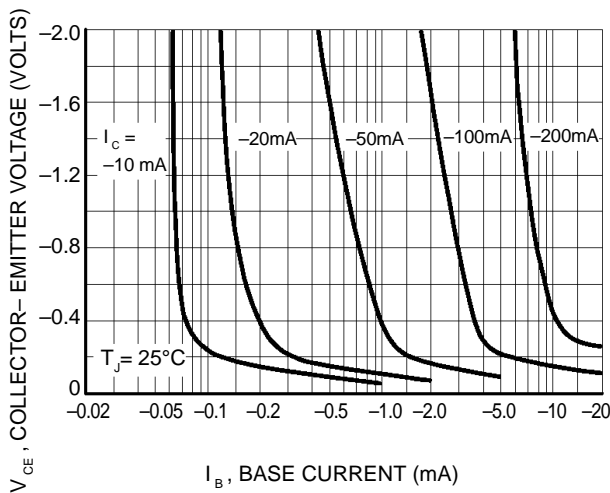
BC856



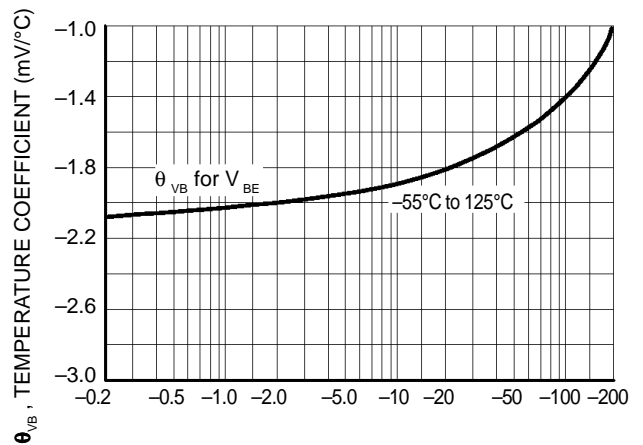
I_C , COLLECTOR CURRENT (mA)
Figure 7. DC Current Gain



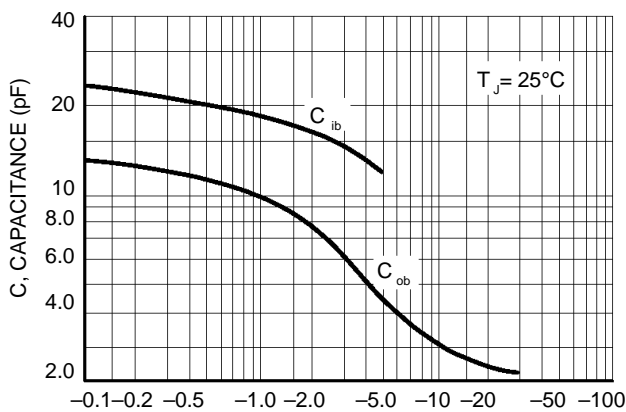
I_C , COLLECTOR CURRENT (mA)
Figure 8. "On" Voltage



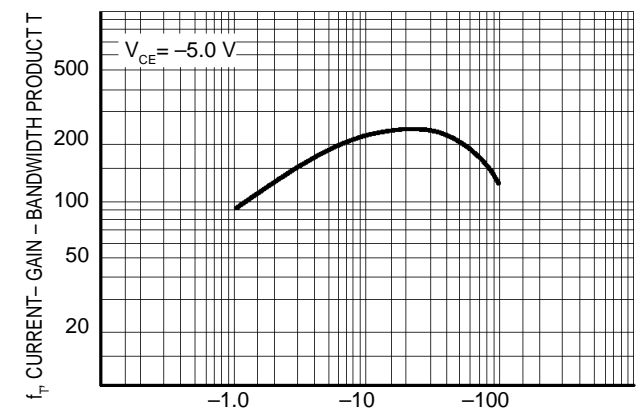
I_B , BASE CURRENT (mA)
Figure 9. Collector Saturation Region



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

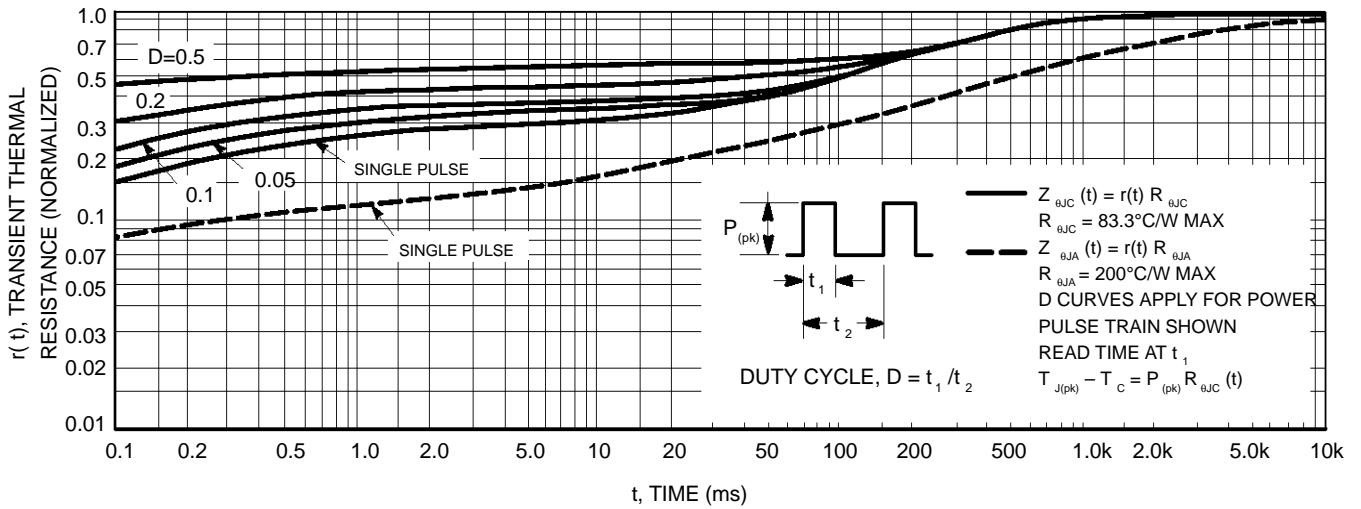


Figure 13. Thermal Response

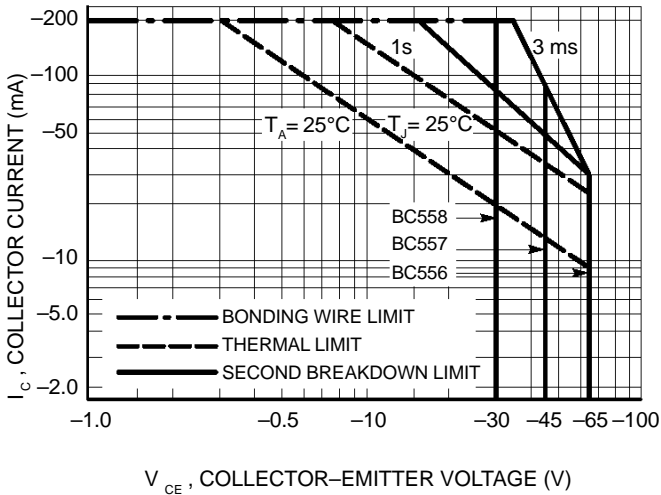
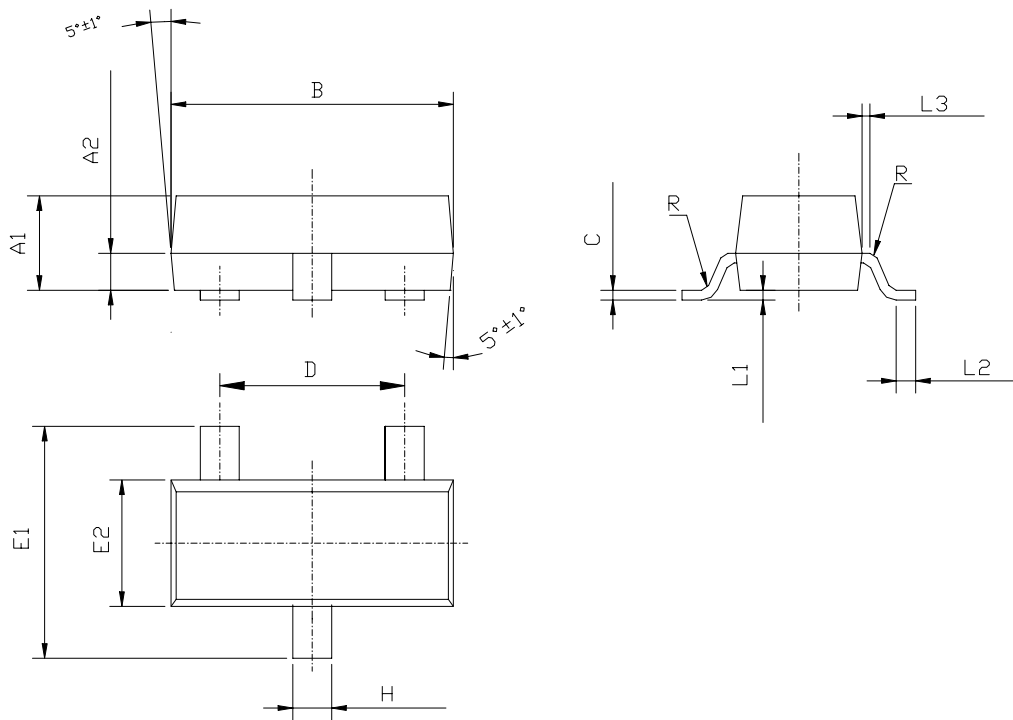
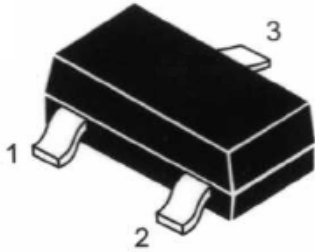


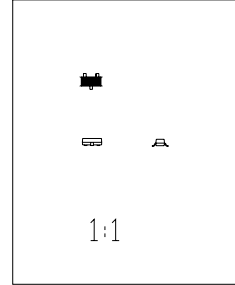
Figure 14. Active Region Safe Operating Area



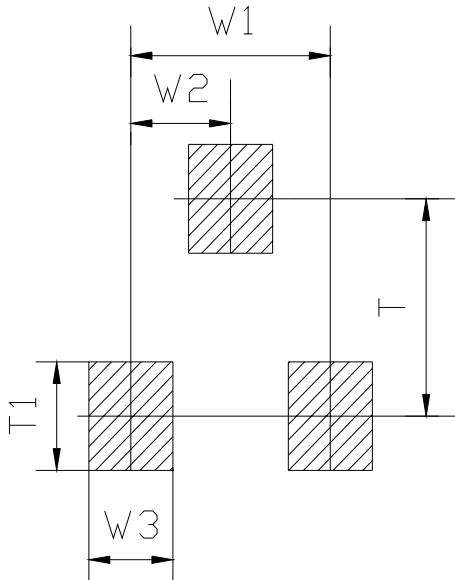
Symbol	Dimensions in Millimeters			内部结构 STYLS	管脚 PIN		
	Min	Nominal	Max		1 脚	2 脚	3 脚
A1	0.900	0.970	1.000	6	基极 BASE	发射极 EMITTER	集电极 COLLECTOR
A2	0.350	0.380	0.410		8	阳极 ANODE	不连接 NO- CONNECTION
B	2.800	2.900	3.000	9		阳极 ANODE	阳极 ANODE
C	0.085	0.100	0.150		11	阳极 ANODE	阴极 CATHODE
D	1.800	1.900	2.000	12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



OUTSIDE



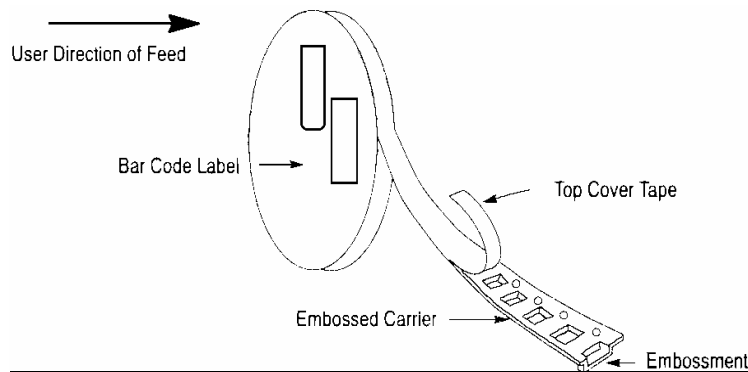
Scale 1:1 on letter size paper



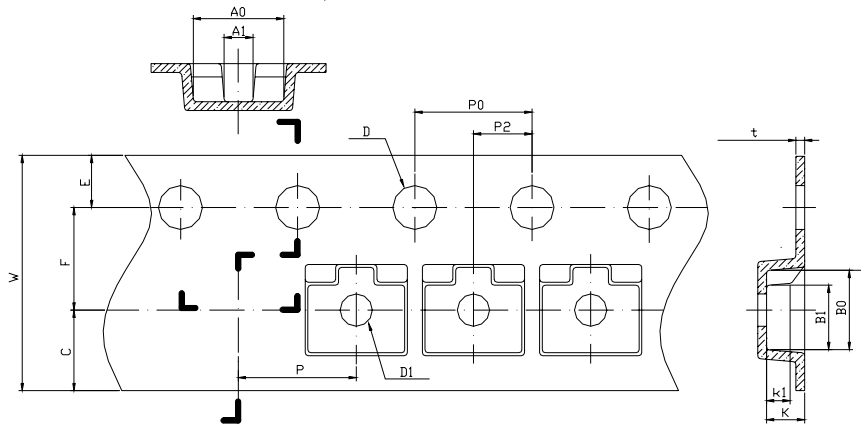
FOOTPRINTS FOR SOLDERING

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 PACKAGING:

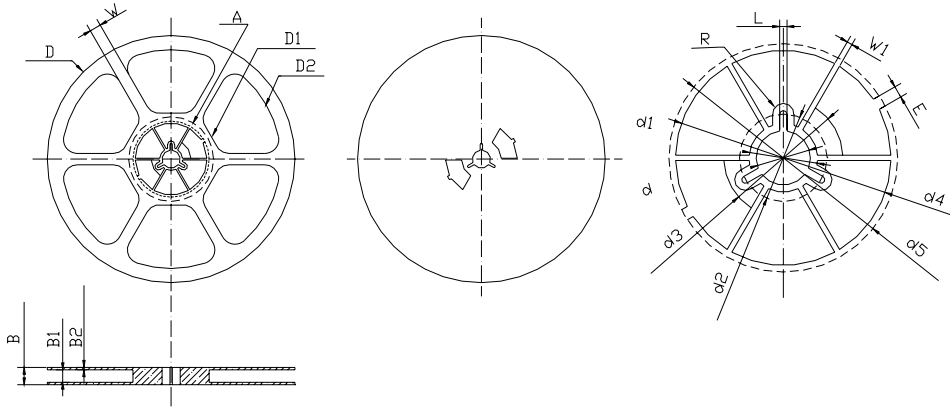


SOT-23 EMBOSSED CARRIER TAPE:



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	ϕ 177.000	ϕ 178.000	ϕ 179.000	Φ 6.9685	Φ 7.0079	Φ 7.0472
D1	Φ 67.600 TYP			Φ 2.6614 TYP		
D2	Φ 157.600 TYP			Φ 6.2047 TYP		
d	Φ 12.800	Φ 13.000	Φ 13.200	Φ 0.5039	Φ 0.5118	Φ 0.5197
d1	Φ 16.40 TYP			Φ 0.6457 TYP		
d2	Φ 21.000 TYP			Φ 0.8268 TYP		
d3	Φ 25.200 TYP			Φ 0.9922 TYP		
d4	Φ 50.600	Φ 51.600	Φ 52.600	Φ 1.9921	Φ 2.0315	Φ 2.0709
d5	Φ 53.800	Φ 54.800	Φ 55.800	Φ 2.1181	Φ 2.1575	Φ 2.1969
E	2.800 TYP			0.1102 TYP		
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		