

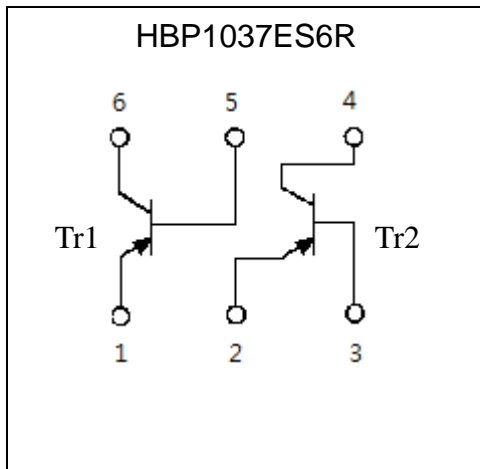
**General Purpose PNP Epitaxial Planar Transistors
 (dual transistors)**

HBP1037ES6R

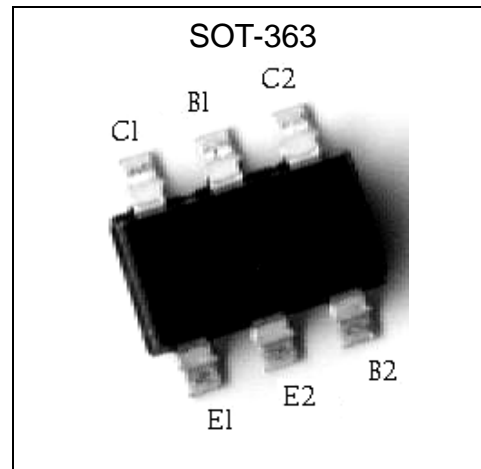
Features

- Two BTA1037 chips in a SOT-363 package.
- Mounting possible with SOT-323 automatic mounting machines.
- Transistor elements are independent, eliminating interference.
- Mounting cost and area can be cut in half.
- Excellent hFE linearity
- Complementary to HBN2412ES6R.
- Pb-free lead plating and halogen-free package.

Equivalent Circuit

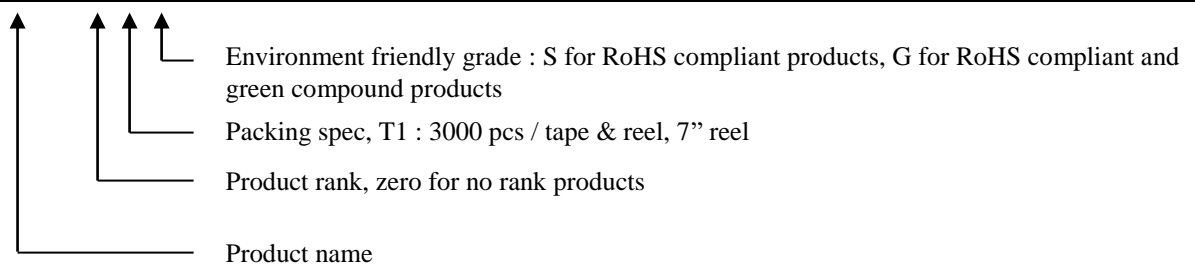


Outline



Ordering Information

Device	Package	Shipping
HBP1037ES6R-X-T1-G	SOT-363 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel





The following characteristics apply to both Tr1 and Tr2

Absolute Maximum Ratings (Ta=25°C, each transistor)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V _{CB0}	-100	V
Collector-Emitter Voltage	V _{CEO}	-65	V
Emitter-Base Voltage	V _{EBO}	-6	V
Collector Current	I _C	-150	mA
Power Dissipation	P _D	200(total) (Note)	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	625	°C/W
Operating Junction Temperature Range	T _j	-55~+150	°C
Storage Temperature Range	T _{stg}	-55~+150	°C

Note : 150mW per element must not be exceeded

Characteristics (Ta=25°C, each transistor)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	-100	-	-	V	I _C =-50μA
BV _{CEO}	-65	-	-	V	I _C =-1mA
BV _{EBO}	-6	-	-	V	I _E =-50μA
I _{CB0}	-	-	-0.1	μA	V _{CB} =-80V
I _{EBO}	-	-	-0.1	μA	V _{EB} =-6V
*V _{CE(sat)}	-	-	-0.2	V	I _C =-10mA, I _B =-0.5mA
*V _{CE(sat)}	-	-0.12	-0.3	V	I _C =-50mA, I _B =-5mA
*V _{CE(sat)}	-	-	-0.4	V	I _C =-100mA, I _B =-5mA
V _{BE}	-0.6	-	-0.7	V	V _{CE} =-6V, I _C =-2mA
V _{BE}	-	-	-0.76	V	V _{CE} =-6V, I _C =-10mA
*h _{FE}	120	-	420		V _{CE} =-6V, I _C =-1mA
f _T	80	110	-	MHz	V _{CE} =-10V, I _C =-1mA, f=100MHz
C _{ob}	-	2	3.5	pF	V _{CB} =-10V, f=1MHz

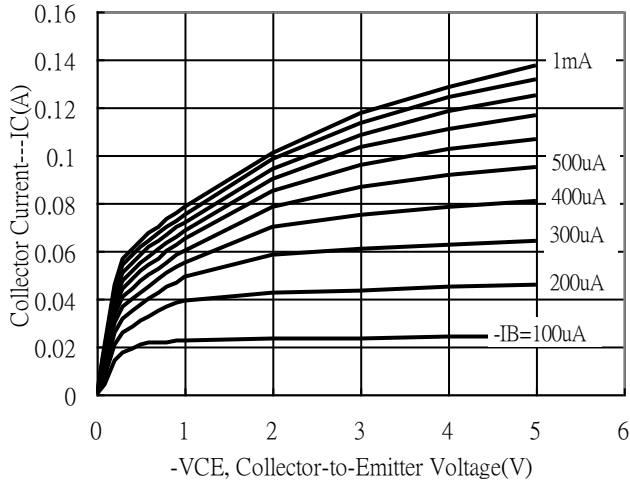
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification of h_{FE}

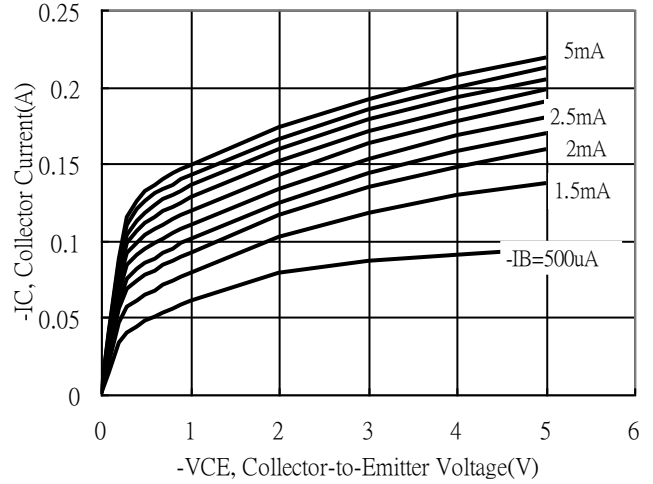
Rank	Y	G
Range	120~240	200~420

Typical Characteristics

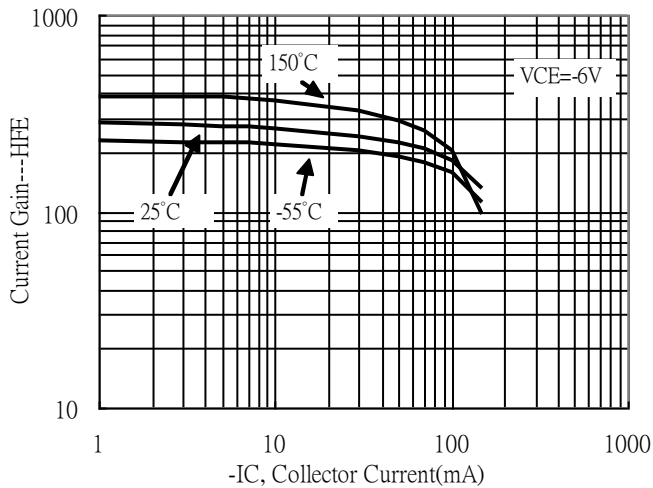
Emitter Grounded Output Characteristics



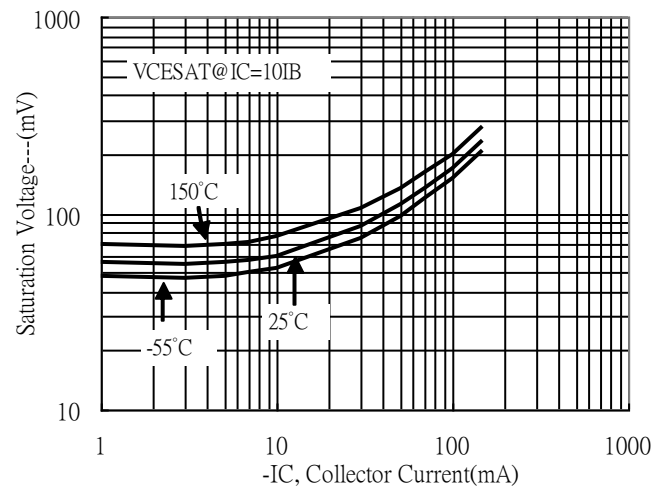
Emitter Grounded Output Characteristics



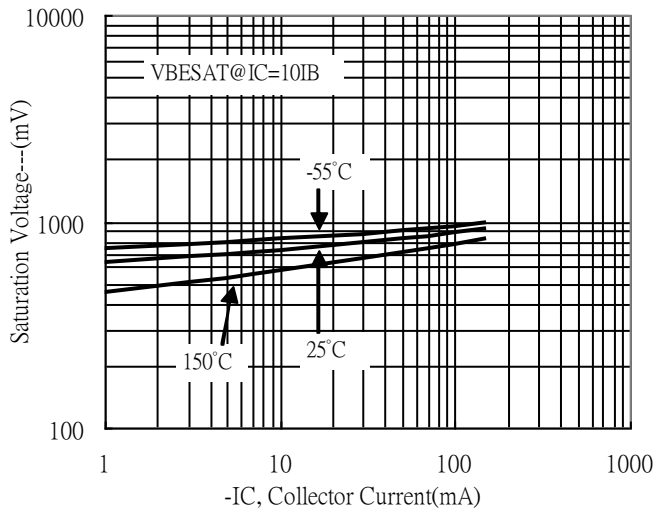
Current Gain vs Collector Current



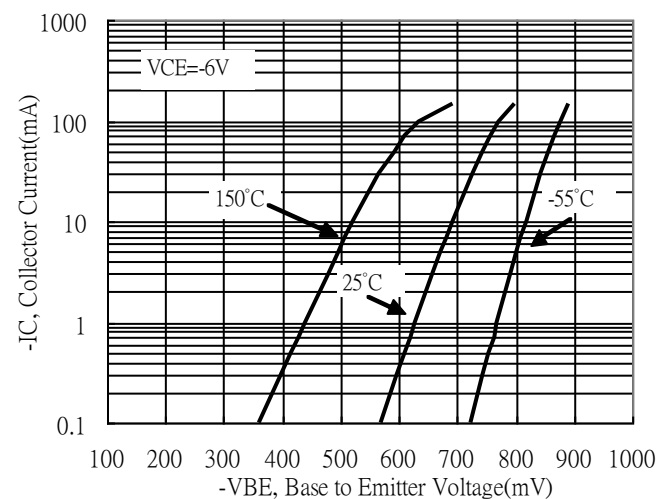
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

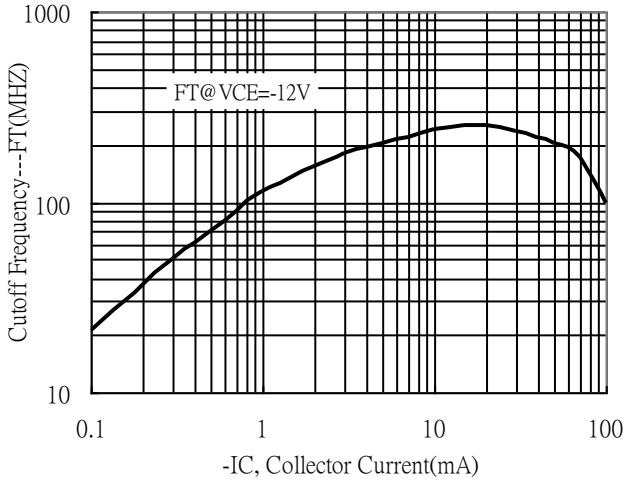


On Voltage vs Collector Current

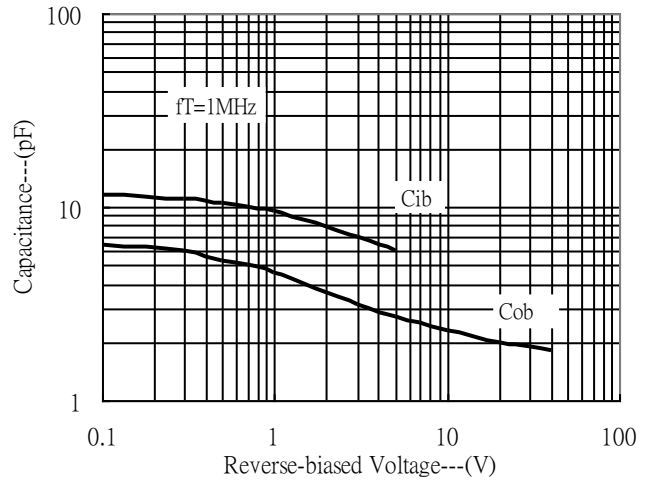


Typical Characteristics

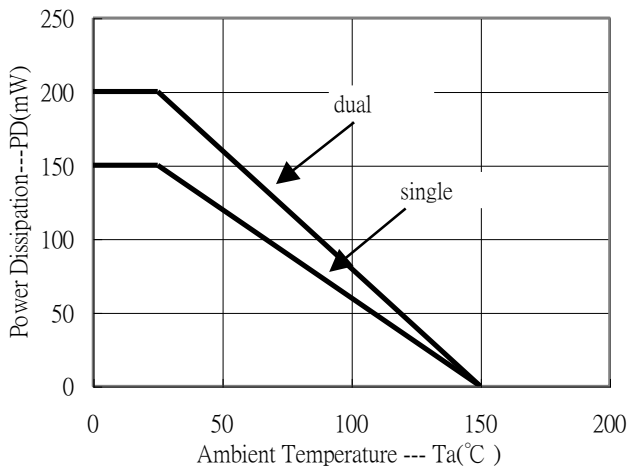
Cutoff Frequency vs Collector Current



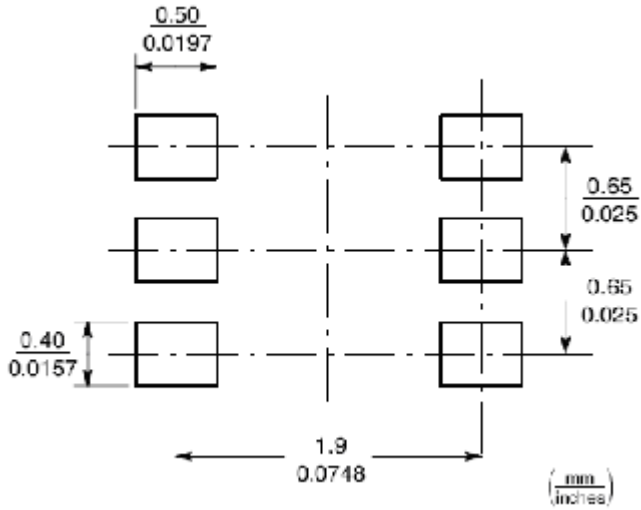
Capacitance Characteristics



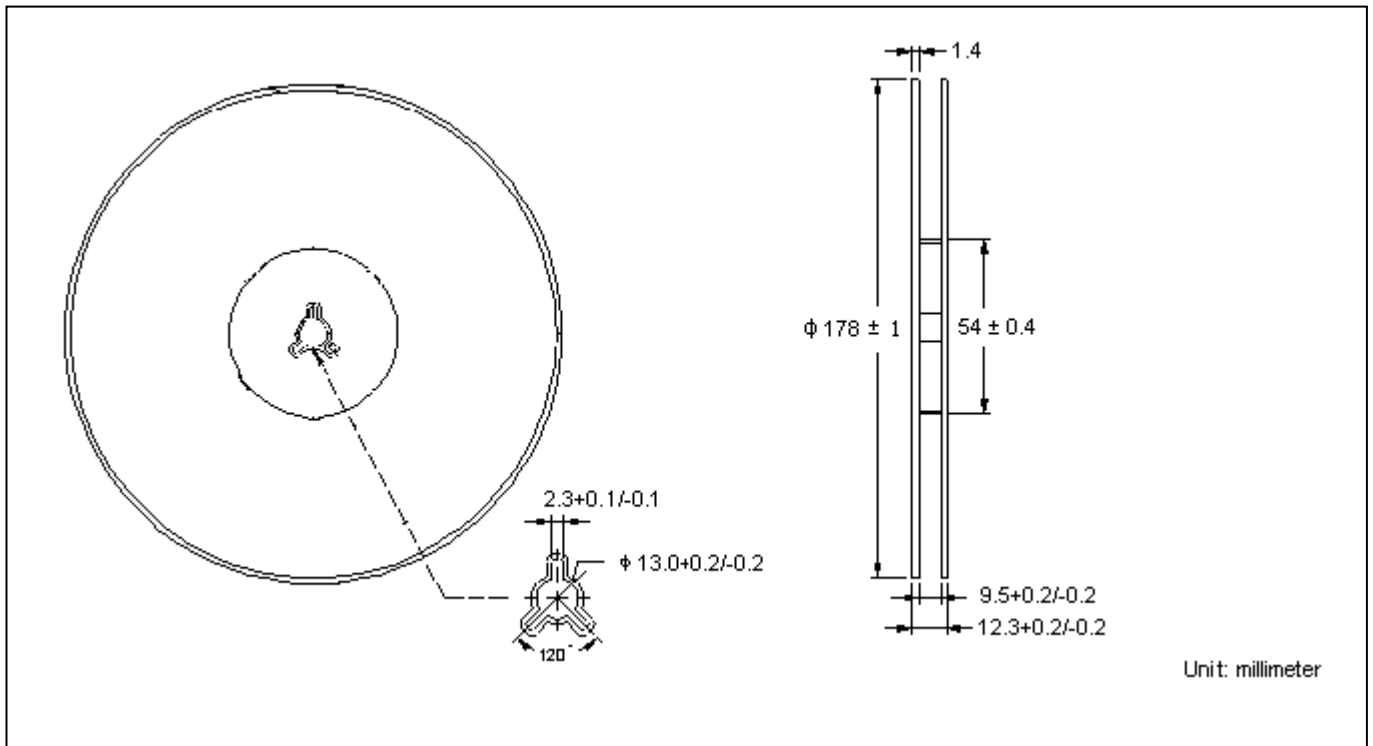
Power Derating Curves



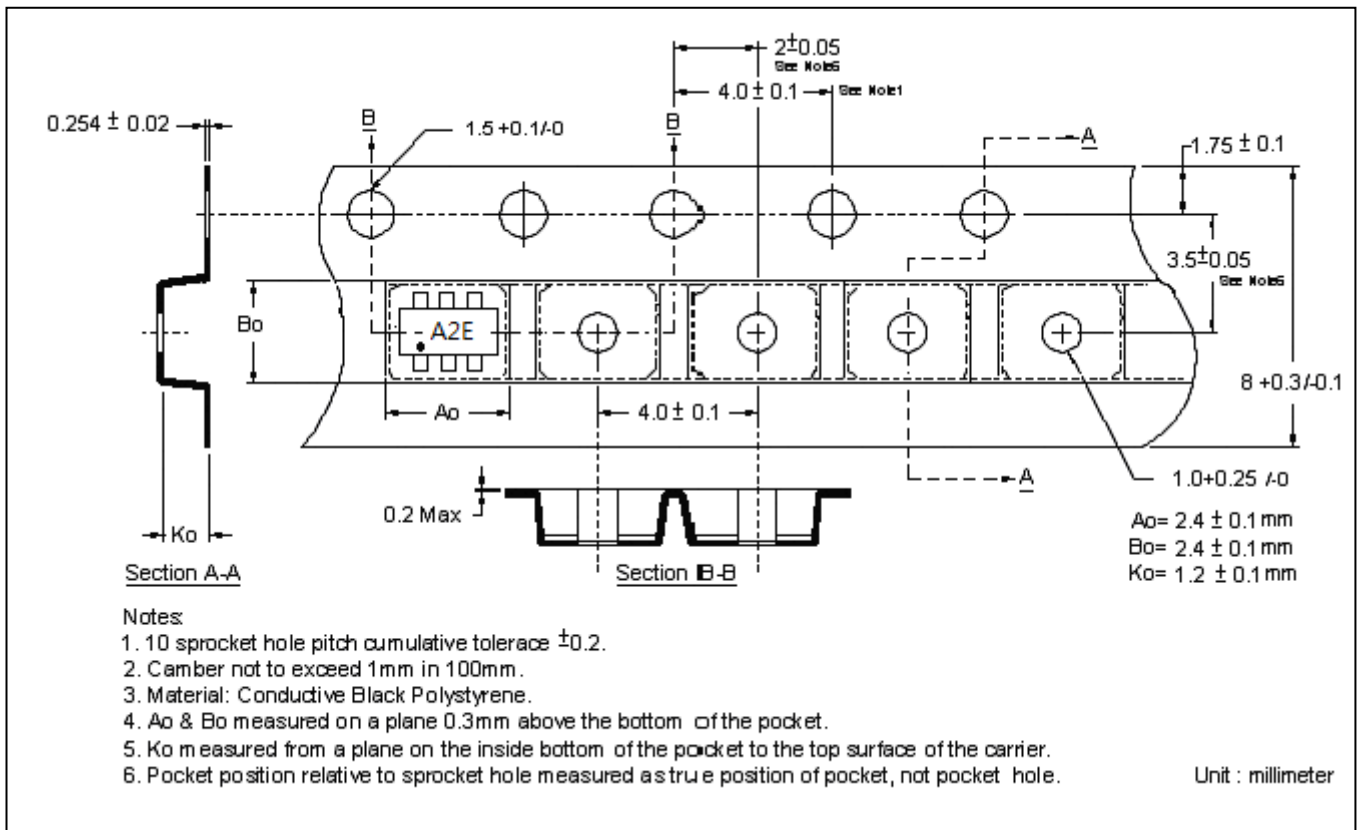
Recommended Soldering Footprint



Reel Dimension



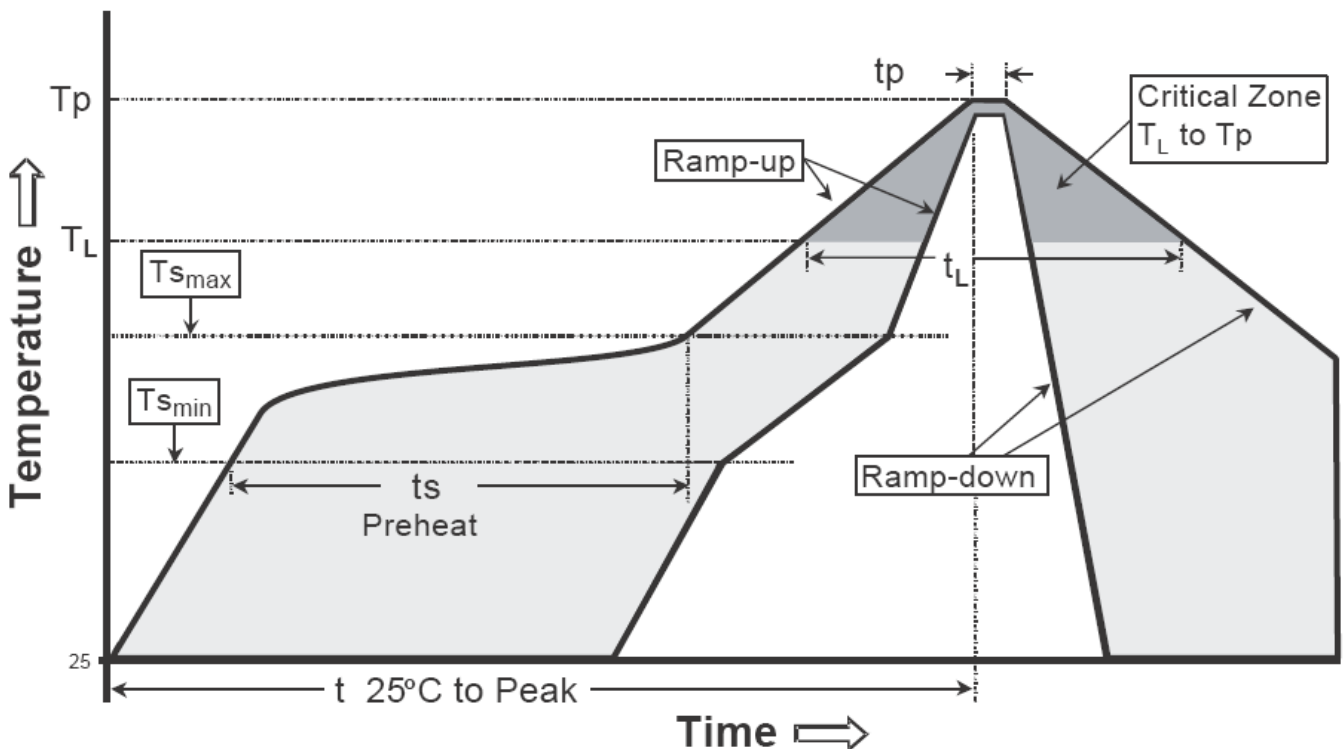
Carrier Tape Dimension



Recommended wave soldering condition

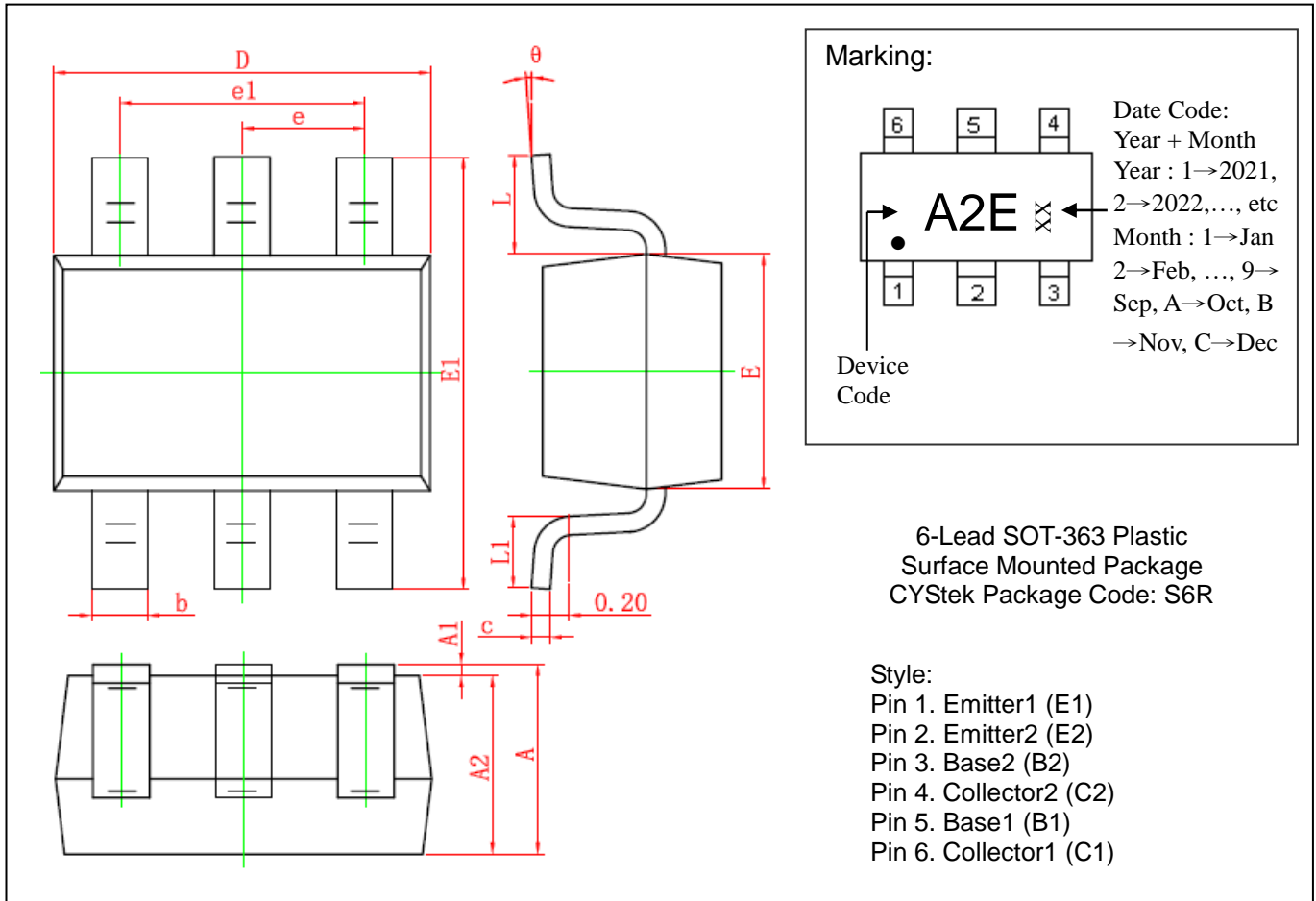
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	60-150 seconds
Peak Temperature(T _p)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

SOT-363 Dimension



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650 TYP		0.026 TYP	
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.150	0.350	0.006	0.014	L	0.525 REF		0.021	REF
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					

Notes : 1. Controlling dimension : millimeters.
 2. Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3. If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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