General Purpose NPN / PNP Epitaxial Planar Transistors (dual transistors)

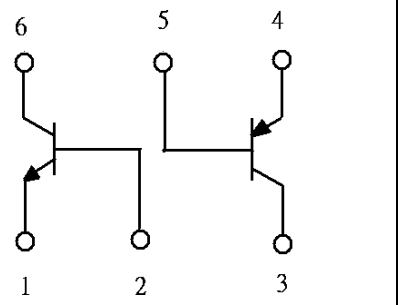
HBNP2227S6R

Features

- Includes a PN2222A chip and PN2907A chip in a SOT-363R package.
- Mounting possible with SOT-323 automatic mounting machines.
- Transistor elements are independent, eliminating interference.
- Mounting cost and area can be cut in half.

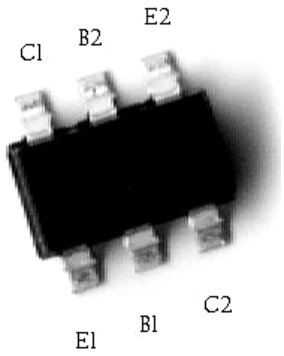
Equivalent Circuit

HBNP2227S6R



Outline

SOT-363R



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits		Unit
		TR1 (NPN)	TR2 (PNP)	
Collector-Base Voltage	V_{CBO}	75	-60	V
Collector-Emitter Voltage	V_{CEO}	40	-60	V
Emitter-Base Voltage	V_{EBO}	6	-5	V
Collector Current	I_C	600	-600	mA
Power Dissipation	Pd	200(total) *1		mW
Junction Temperature	Tj	150		°C
Storage Temperature	Tstg	-55~+150		°C

Note: *1 150mW per element must not be exceeded.

Characteristics (Ta=25°C)

- **TR1 (NPN)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	75	-	-	V	I_C=10□A
BV_{CEO}	40	-	-	V	I_C=10mA
BV_{EBO}	6	-	-	V	I_E=10□A
I_{CBO}	-	-	10	nA	V_{CB}=60V
I_{CEX}	-	-	10	nA	V_{CE}=60V,V_{EB}=3V
I_{EBO}	-	-	100	nA	V_{EB}=3V
*$V_{CE(sat)}$	-	-	0.3	V	I_C=150mA, I_B=15mA
*$V_{CE(sat)}$	-	-	1.0	V	I_C=500mA, I_B=50mA
*$V_{BE(sat)}$	-	-	1.2	V	I_C=150mA, I_B=15mA
*$V_{BE(sat)}$	-	-	2.0	V	I_C=500mA, I_B=50mA
h_{FE}	35	-	-	-	V_{CE}=10V, I_C=100□A
h_{FE}	50	-	-	-	V_{CE}=10V, I_C=1mA
h_{FE}	75	-	-	-	V_{CE}=10V, I_C=10mA
*h_{FE}	100	-	300	-	V_{CE}=10V, I_C=150mA
*h_{FE}	50	-	-	-	V_{CE}=1V, I_C=150mA
*h_{FE}	40	-	-	-	V_{CE}=10V, I_C=500mA
f_T	300	-	-	MHz	V_{CE}=20V, I_C=20mA, f=100MHz
Cob	-	-	8	pF	V_{CB}=10V, f=1MHz

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

- **TR2 (PNP)**

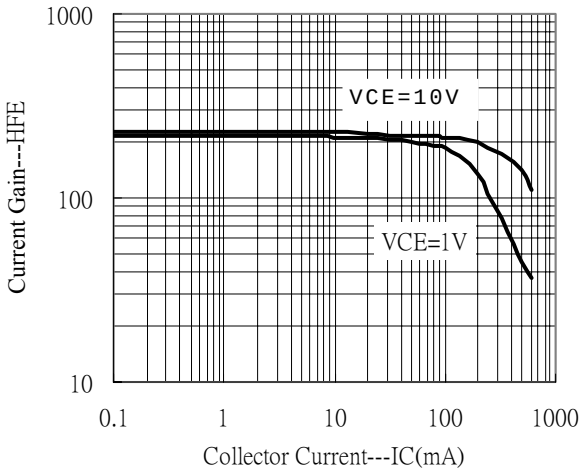
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-60	-	-	V	I_C=-10□A
BV_{CEO}	-60	-	-	V	I_C=-10mA
BV_{EBO}	-5	-	-	V	I_E=-10□A
I_{CBO}	-	-	-10	nA	V_{CB}=-50V
I_{CEX}	-	-	-50	nA	V_{CE}=-30V,V_{EB}=-0.5V
I_{EBO}	-	-	-100	nA	V_{EB}=-3V
*$V_{CE(sat)}$	-	-	-0.4	V	I_C=-150mA, I_B=-15mA
*$V_{CE(sat)}$	-	-	-1.6	V	I_C=-500mA, I_B=-50mA
*$V_{BE(sat)}$	-	-	-1.3	V	I_C=-150mA, I_B=-15mA
*$V_{BE(sat)}$	-	-	-2.6	V	I_C=-500mA, I_B=-50mA
h_{FE}	75	-	-	-	V_{CE}=-10V, I_C=-100□A
h_{FE}	100	-	-	-	V_{CE}=-10V, I_C=-1mA
h_{FE}	100	-	-	-	V_{CE}=-10V, I_C=-10mA
*h_{FE}	100	-	300	-	V_{CE}=-10V, I_C=-150mA
*h_{FE}	50	-	-	-	V_{CE}=-10V, I_C=-500mA
f_T	200	-	-	MHz	V_{CE}=-20V, I_C=-50mA, f=100MHz
Cob	-	-	8	pF	V_{CB}=-10V, f=1MHz

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

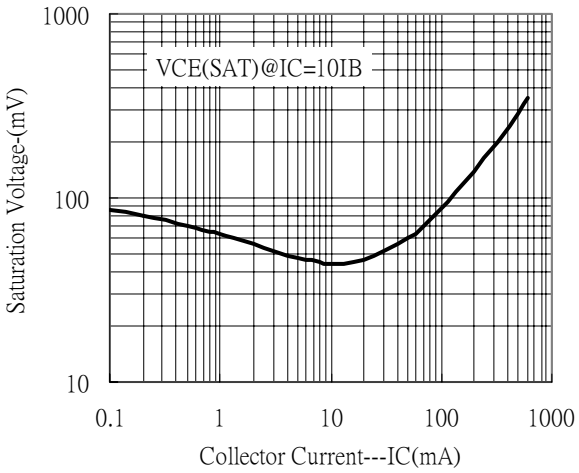
Characteristic curves

- **TR1 (NPN)**

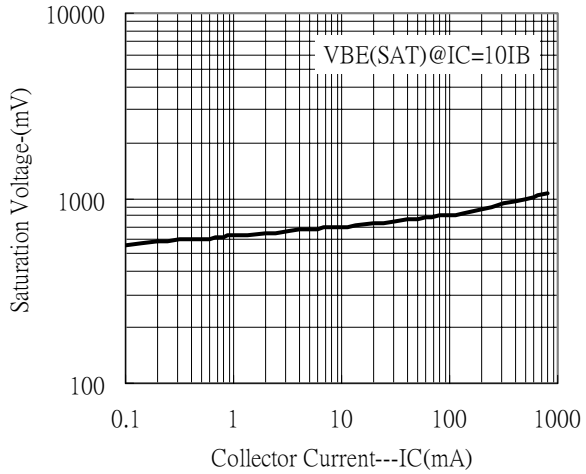
Current Gain vs Collector Current



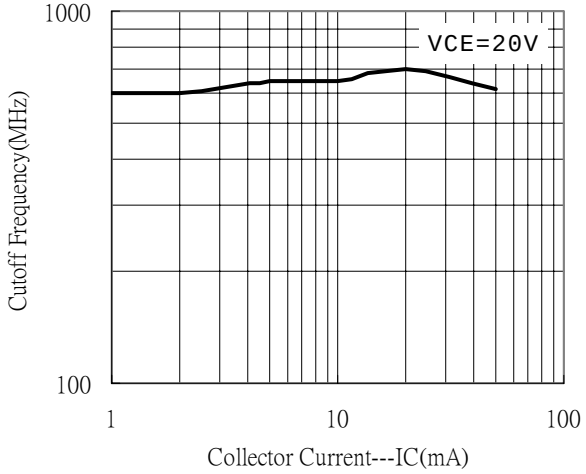
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

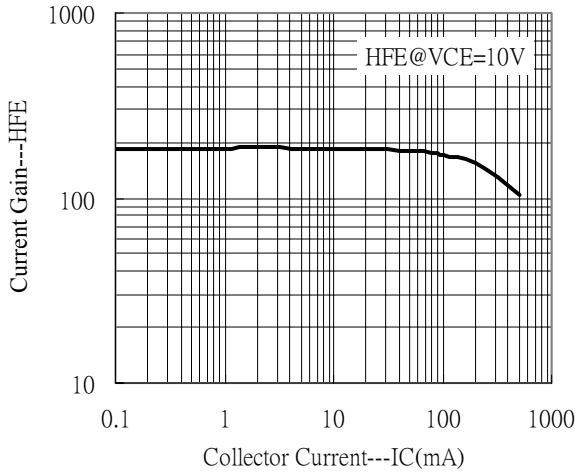


Cutoff Frequency vs Collector Current

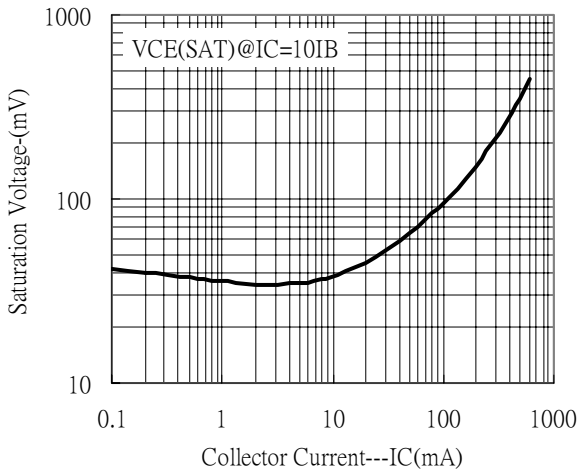


• TR2 (PNP)

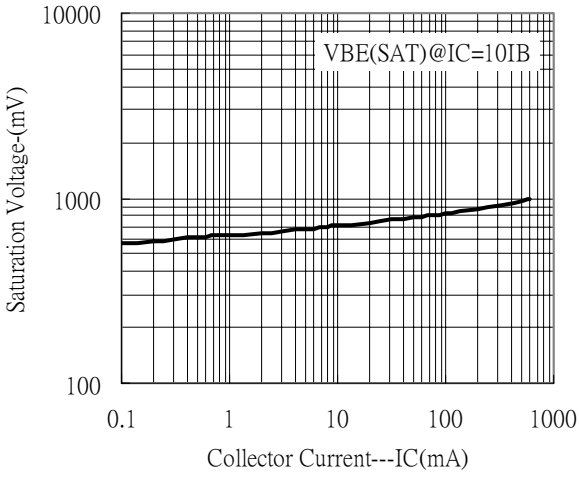
Current Gain vs Collector Current



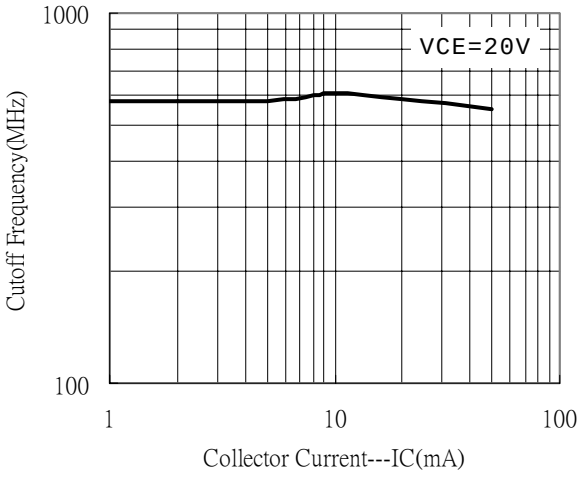
Saturation Voltage vs Collector Current



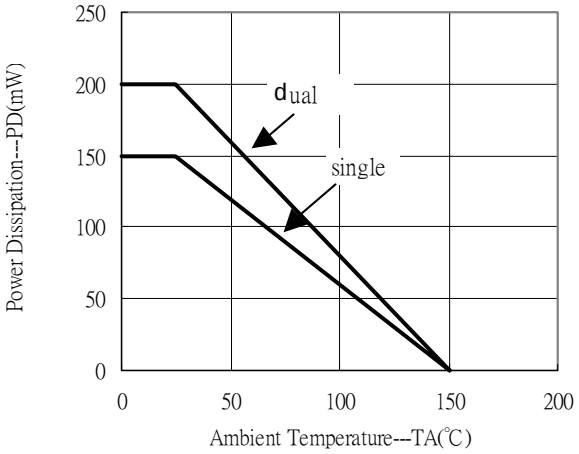
Saturation Voltage & Collector Current



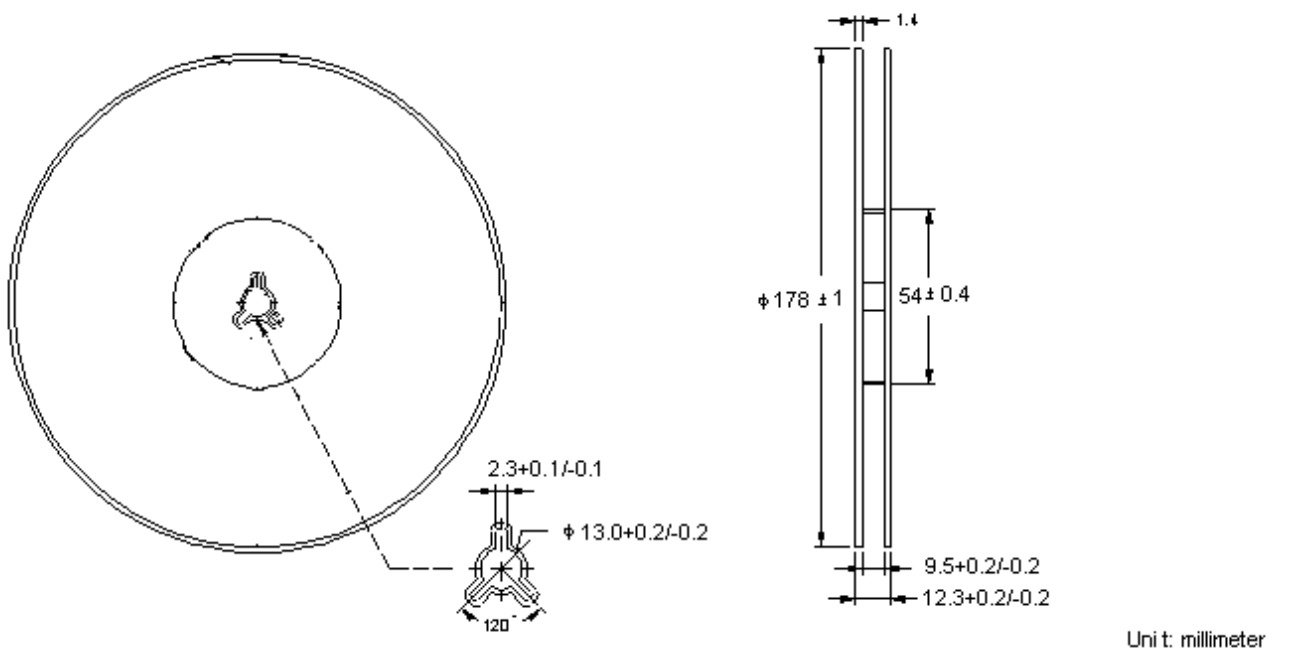
Cutoff Frequency vs Collector Current



Power Derating Curves

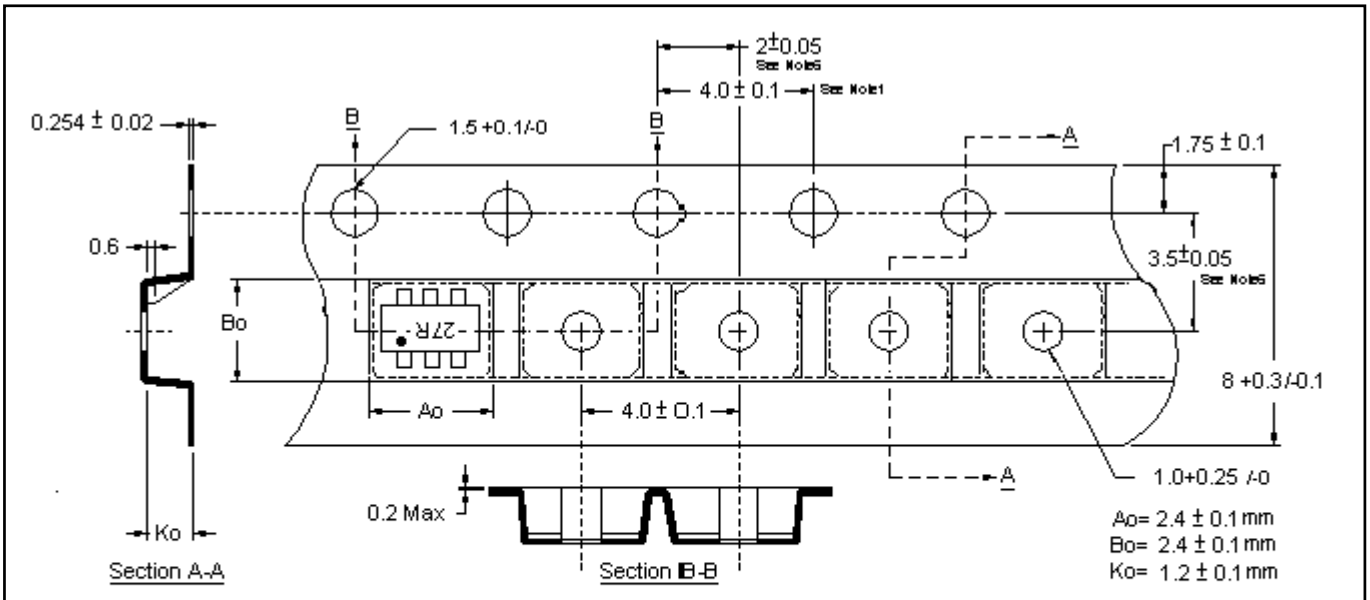


Reel Dimension



Unit: millimeter

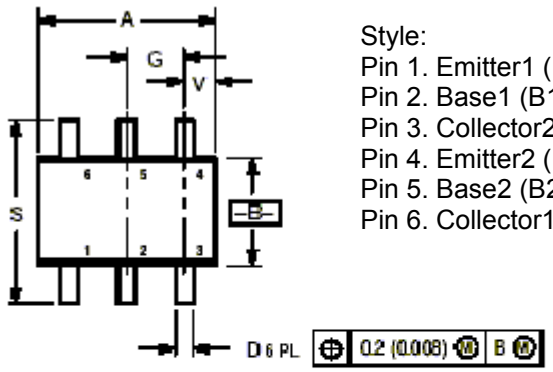
Carrier Tape Dimension



Notes:
1. 10 sprocket hole pitch cumulative tolerace ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive Black Advantek Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

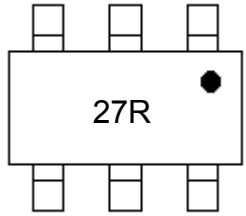
Unit : millimeter

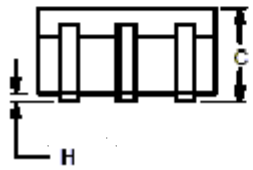
SOT-363R Dimension

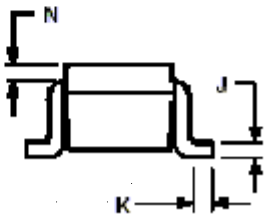


Style:
Pin 1. Emitter1 (E1)
Pin 2. Base1 (B1)
Pin 3. Collector2 (C2)
Pin 4. Emitter2 (E2)
Pin 5. Base2 (B2)
Pin 6. Collector1 (C1)

Marking:







6-Lead SOT-363R Plastic
Surface Mounted Package
CYStek Package Code: S6R

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.071	0.087	1.8	2.2	J	0.004	0.010	0.1	0.25
B	0.045	0.053	1.15	1.35	K	0.004	0.012	0.1	0.30
C	0.031	0.043	0.8	1.1	N	0.008 REF		0.20 REF	
D	0.004	0.012	0.1	0.3	S	0.079	0.087	2.00	2.40
G	0.026BSC		0.65BSC		Y	0.012	0.016	0.30	0.40
H	-	0.004	-	0.1					

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 : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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