PNP Epitaxial Planar Power Transistor

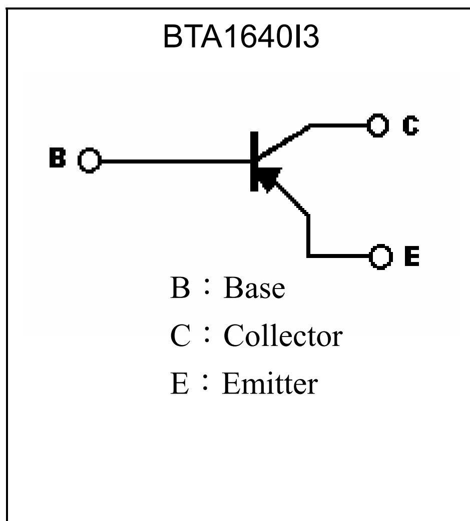
BTA1640I3

BV_{CEO}	-50V
I_C	-7A
R_{CESAT}	70mΩ

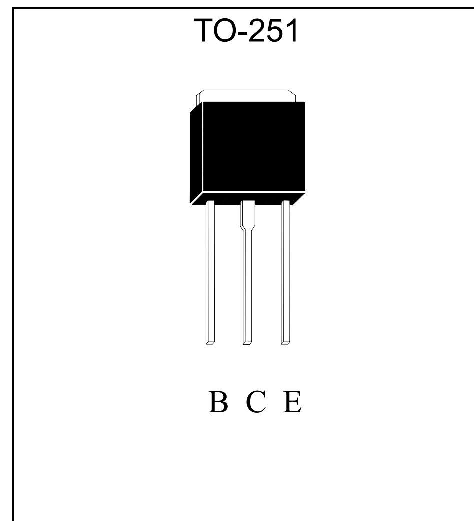
Features

- Low collector-emitter saturation voltage, $V_{CE(sat)}$ = -0.4V(max) @ I_C = -3A, I_B=-0.15A
- Excellent current gain linearity
- RoHS compliant package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-7	A
Collector Current (Pulse)	I_{CP}	-10 (Note 1)	A
Power Dissipation @ T_A=25℃	P_D	1	W
Power Dissipation @ T_C=25℃	P_D	20	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	6.25	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : 1. Single Pulse , Pw≦380μs, Duty≦2%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$*BV_{CEO}$	-50	-	-	V	I_C=-10mA, I_B=0
BV_{CBO}	-60	-	-	V	I_C=-1mA, I_E=0
BV_{EBO}	-5	-	-	V	I_E=-1mA, I_C=0
I_{CEO}	-	-	-50	μA	V_{CE}=-30V, I_B=0
I_{CBO}	-	-	-1	μA	V_{CB}=-50V, I_B=0
I_{EBO}	-	-	-1	μA	V_{EB}=-5V, I_C=0
$*V_{CE(sat)}$	-	-0.2	-0.4	V	I_C=-3A, I_B=-150mA
$*V_{BE(sat)}$	-	-	-1.2	V	I_C=-3A, I_B=-150mA
$*h_{FE}$	120	-	400	-	V_{CE}=-1V, I_C=-1A
$*h_{FE}$	30	-	-	-	V_{CE}=-1V, I_C=-3A

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

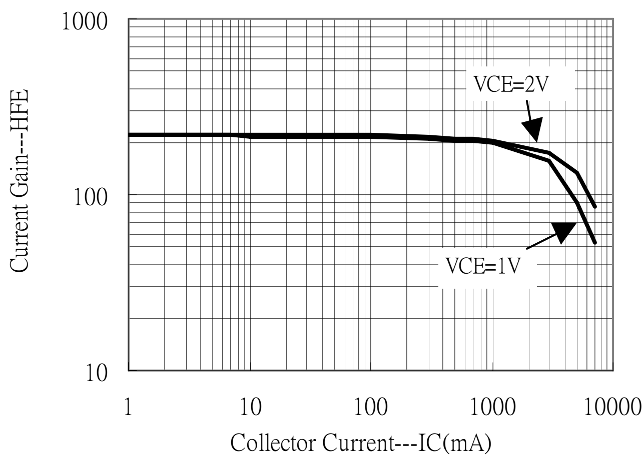
Classification of h_{FE} 1

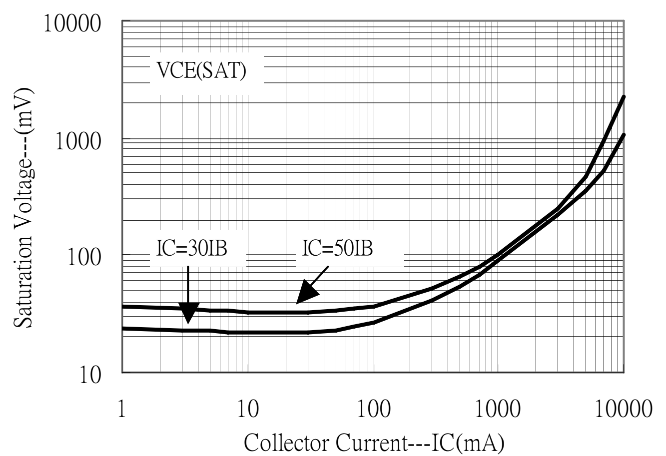
Rank	Y	G
Range	120~240	200~400

Ordering Information

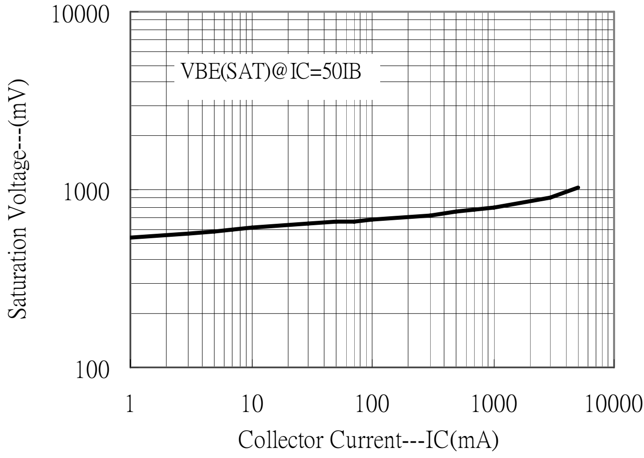
Device	Package	Shipping	Marking
BTA1640I3	TO-251 (RoHS compliant)	80 pcs / tube, 50 tubes / box	A1640

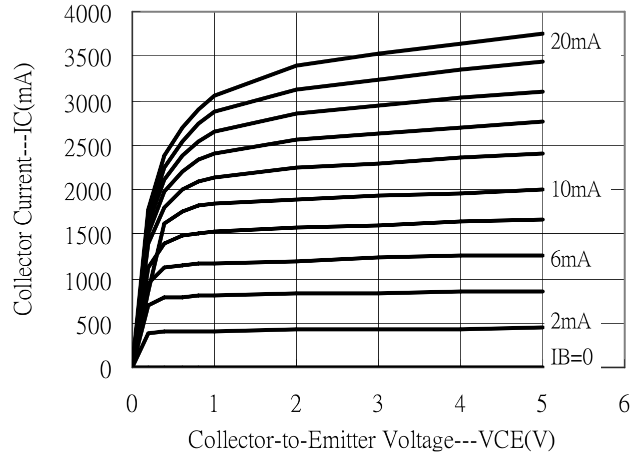
Characteristic Curves

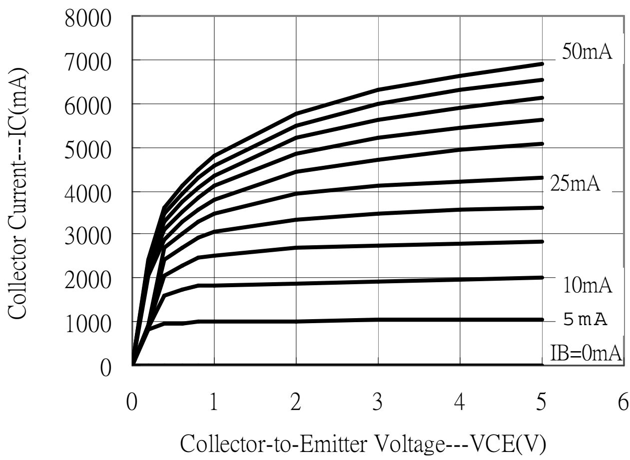


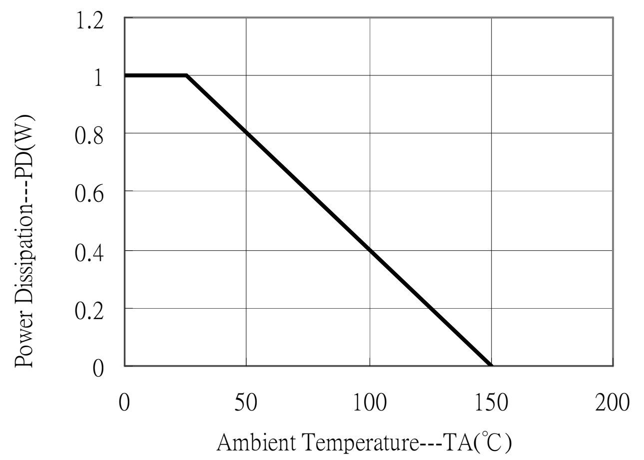


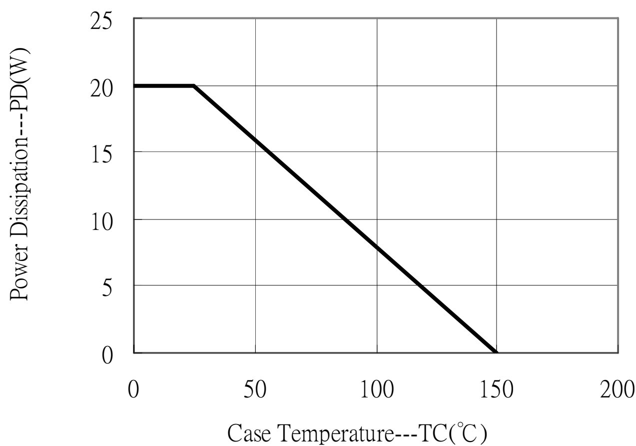
Characteristic Curves(Cont.)







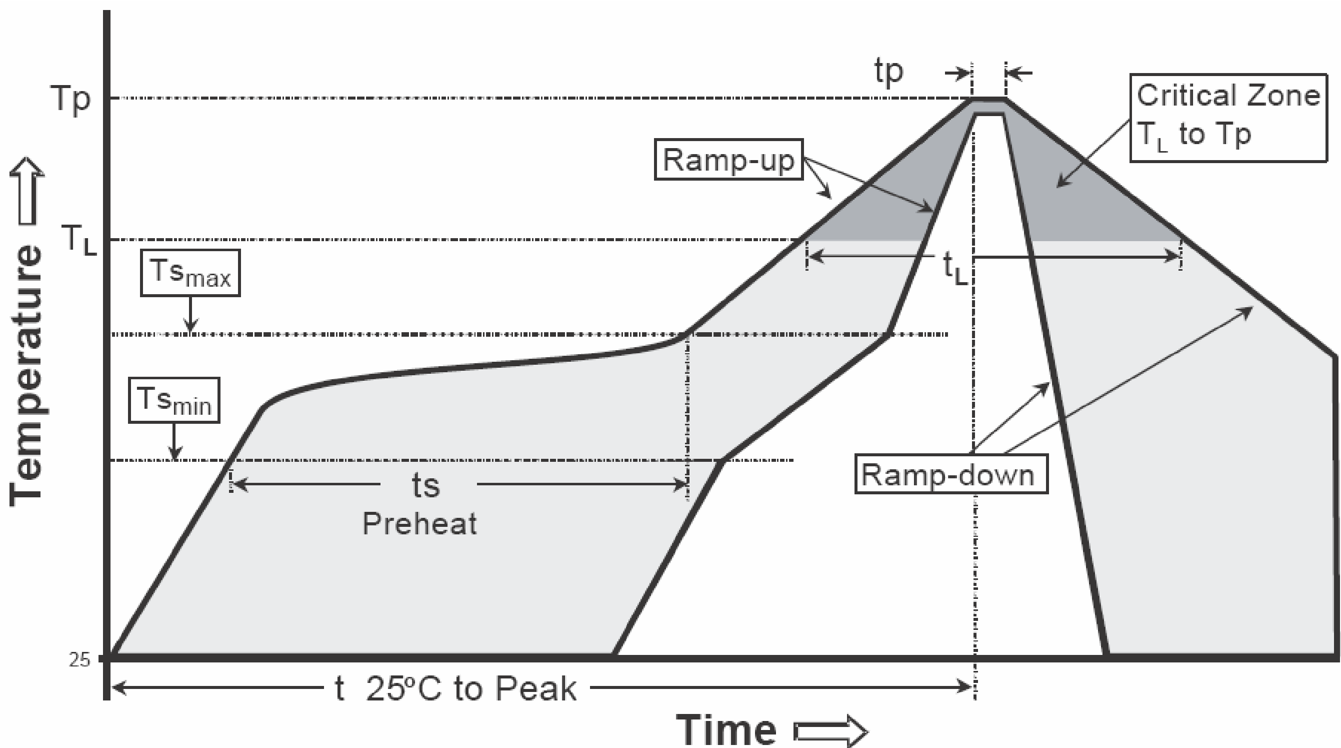




Recommended wave soldering condition

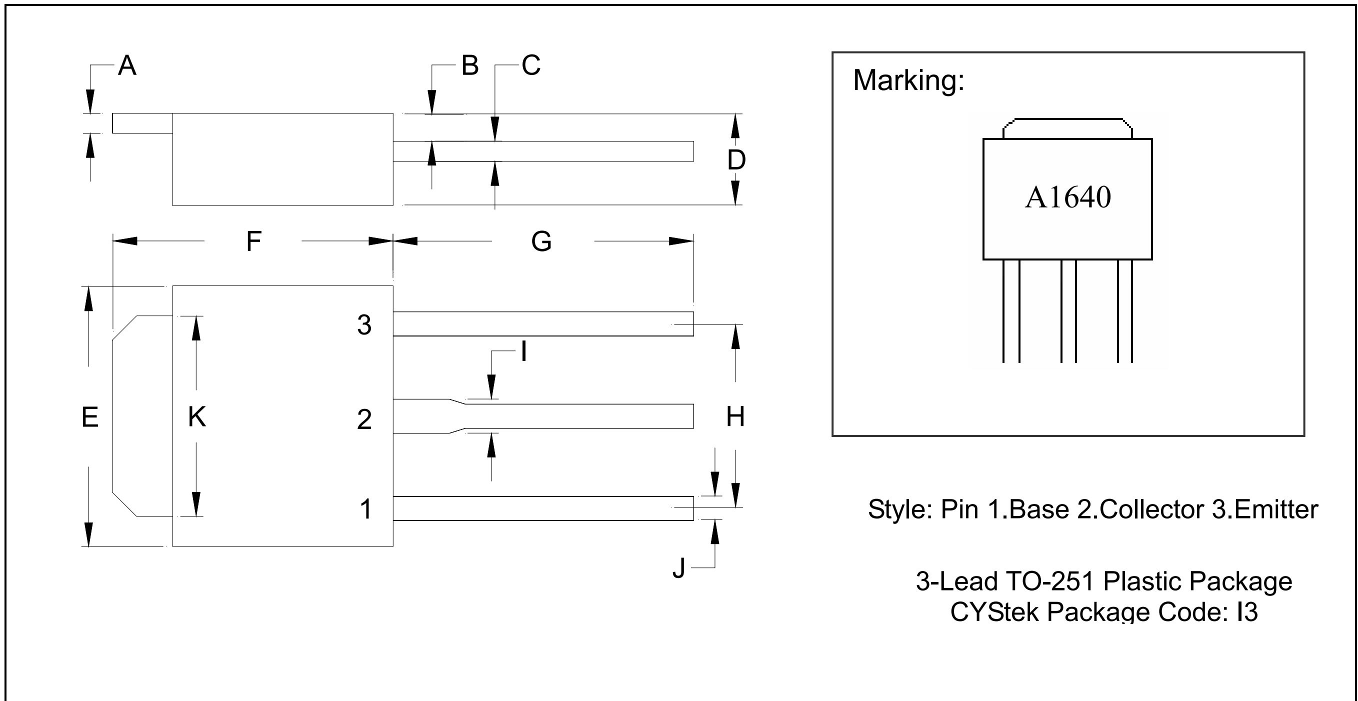
Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	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.

TO-251 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.2559	-	6.50	-
B	0.0354	0.0591	0.90	1.50	H	-	*0.1811	-	*4.60
C	0.0177	0.0236	0.45	0.60	I	-	0.0449	-	1.14
D	0.0866	0.0945	2.20	2.40	J	-	0.0346	-	0.88
E	0.2441	0.2677	6.20	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2677	0.2835	6.80	7.20					

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: KFC; pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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