Low Vcesat NPN Epitaxial Planar Transistor

BTC5706I3

Features

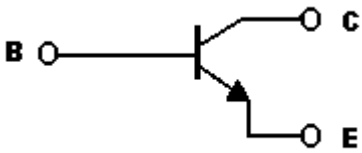
- Low collector-to-emitter saturation voltage
- High-speed switching
- High allowable power dissipation
- Large current capability

Applications

- DC-DC converter, relay drivers, lamp drivers, motor drivers, strobes.

Symbol

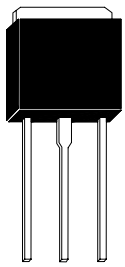
BTC5706I3



B：Base
C：Collector
E：Emitter

Outline

TO-251



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CES}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current (DC)	I_C	5	A
Collector Current (Pulse)	I_{CP}	7.5 (Note 1)	
Base Current	I_B	1.2	A
Power Dissipation @ T_A=25℃	P_D	0.8	W
Power Dissipation @ T_C=25℃	P_D	15	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	156	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.33	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

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

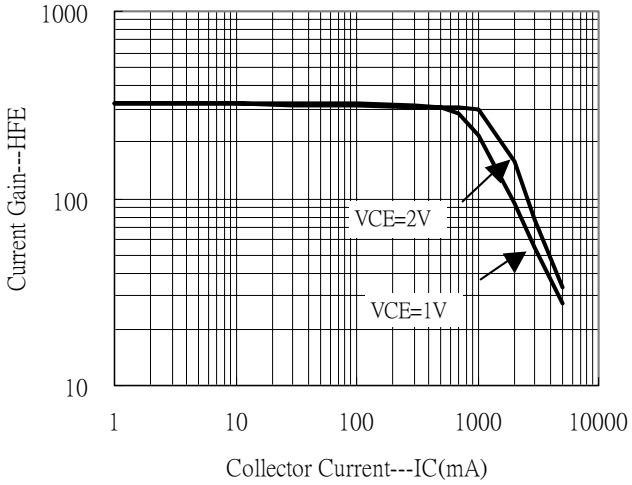
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	80	-	-	V	I_C=10μA, I_E=0
BV_{CES}	80	-	-	V	I_C=100μA, R_{BE}=0
*BV_{CEO}	60	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	6	-	-	V	I_C=10μA, I_C=0
I_{CBO}	-	-	1	μA	V_{CB}=80V, I_E=0
I_{EBO}	-	-	1	μA	V_{EB}=4V, I_C=0
*$V_{CE(sat)}$ 1	-	110	135	mV	I_C=1A, I_B=50mA
*$V_{CE(sat)}$ 2	-	200	240	mV	I_C=2A, I_B=100mA
*$V_{BE(sat)}$	-	0.89	1.2	V	I_C=2A, I_B=100mA
*h_{FE}	200	-	560	-	V_{CE}=2V, I_C=500mA
f_T	-	400	-	MHz	V_{CE}=10V, I_C=500mA
Cob	-	15	-	pF	V_{CB}=10V, f=1MHz
t_{on}	-	35	-	ns	V_{CC}=25V, I_C=10I_{B1}=-10I_{B2}=1A, R_L=25Ω
t_{stg}	-	300	-	ns	
t_f	-	20	-	ns	

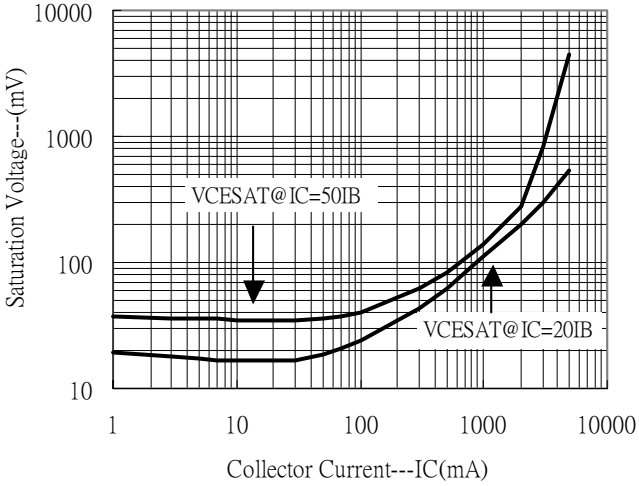
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Characteristic Curves

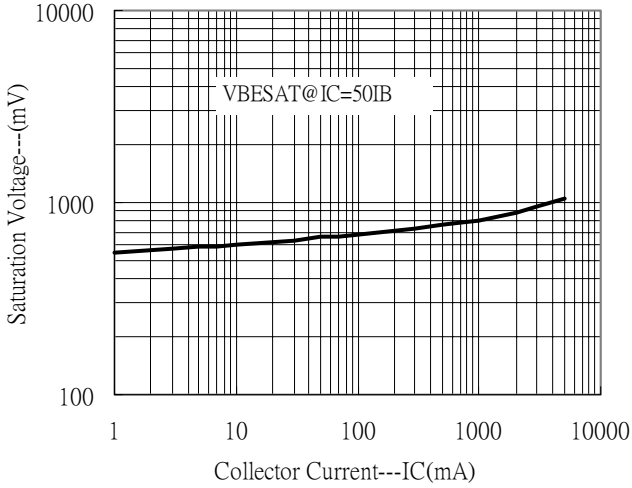
Current Gain vs Collector Current



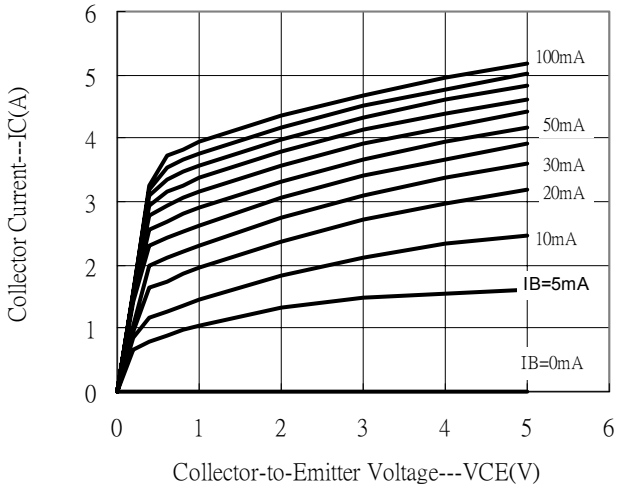
Saturation Voltage vs Collector Current



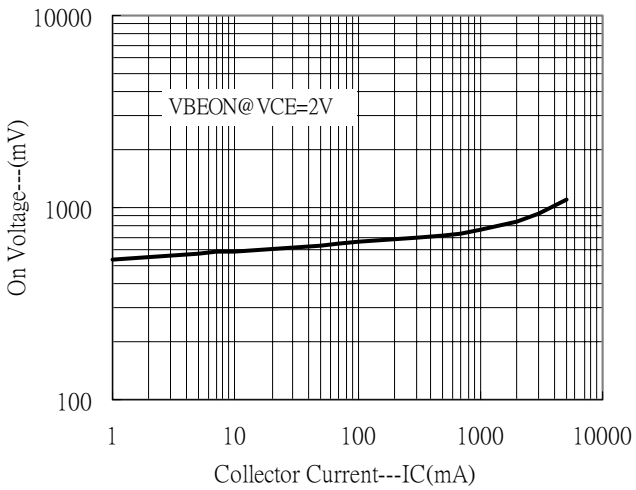
Saturation Voltage vs Collector Current



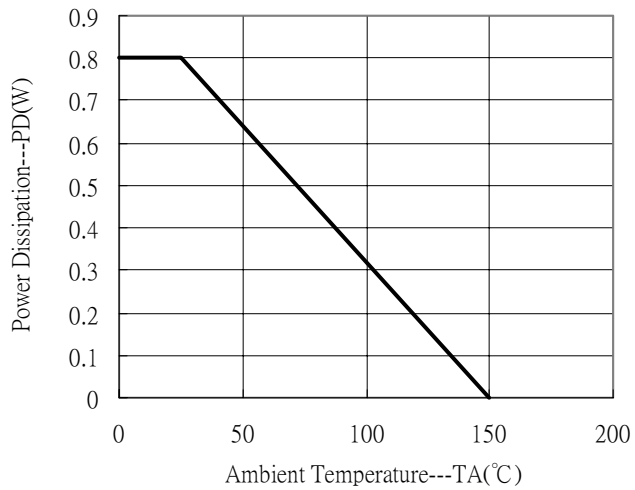
Output Characteristics



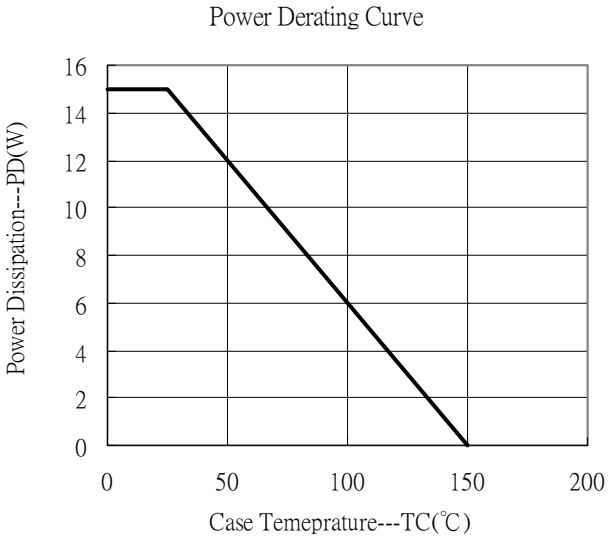
On Voltage vs Collector Current



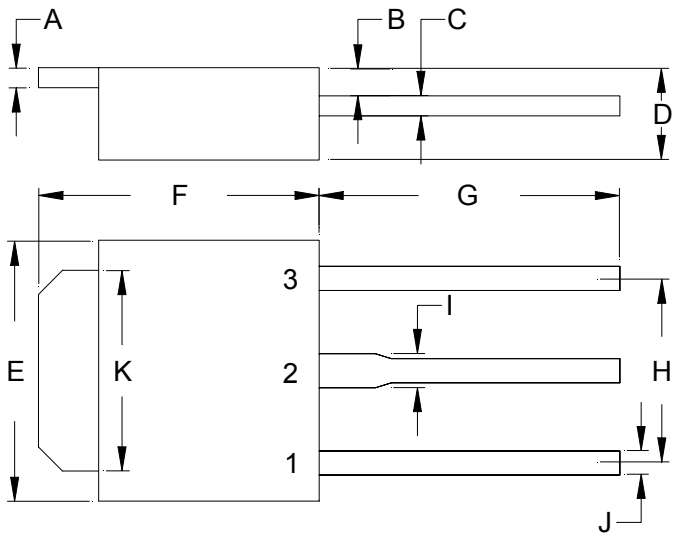
Power Derating Curve



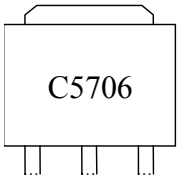
Characteristic Curves(Cont.)



TO-251 Dimension



Marking:



Style: Pin 1.Base 2.Collector 3.Emitter

3-Lead TO-251 Plastic Package
CYStek Package Code: I3

*: 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	-	0.0354	-	0.90
D	0.0866	0.0945	2.20	2.40	J	-	0.0315	-	0.80
E	0.2520	0.2677	6.40	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: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0