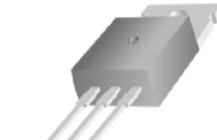


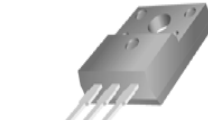
High Voltage NPN Power Transistor

Features

- High Voltage
- High Switch Speed
- $BV_{CEO} : 450V$
- $BV_{CBO} : 800V$
- $I_c : 8A$
- $V_{CE(SAT)} : 3V @ I_c / I_B = 8A / 2A$



TO-220
Pin Definition
1. Base
2. Collector
3. Emitter

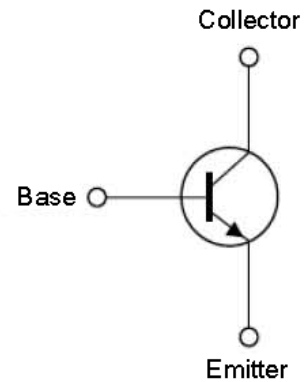


TO-220F
Pin Definition
1. Base
2. Collector
3. Emitter

Application

- Electronic Ballasts
- Adapter
- Lighting

INTERNAL SCHMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS ($T_c = 25^{\circ}C$)

Parameter	Symbol	Max rating	Unit
Collector-Base Voltage	V_{CBO}	800	V
Collector-Emitter Voltage	V_{CEO}	450	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current (DC)	I_c	8	A
Collector Current (Pulse)		16	A
Base Current (DC)	I_B	4	A
Base Current (Pulse)		8	A
Total Power Dissipation (TO-220)	P_D	75	W
Total Power Dissipation (TO-220F)	P_D	30	W
Junction Temperature	T_J	+150	$^{\circ}C$
Operating Junction and Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}C$

Note: Single Pulse. $P_w=300\mu S$, $Duty \leq 2\%$

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Voltage	BVCBO	IC = 1mA, IB=0	800	–	–	V
Collector-Emitter Breakdown Voltage	BVCEO	IC = 10mA, IE=0	450	–	–	V
Emitter- Base Breakdown Voltage	BVEBO	IE = 1mA, IC=0	9	–	–	V
Collector Cutoff Current	ICEO	VCE = 400V, IB=0	–	–	1	mA
Collector Cutoff Current	ICBO	VCB = 700V, IE=0	–	–	1	mA
Emitter Cutoff Current	IEBO	VEB = 9V, IC=0	–	–	1	mA
DC Current Gain	hFE1	VCE = 5V, IC=2A	20	–	40	
	hFE2	VCE = 5V, IC=5A	5	–	30	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC =2A, IB =0.4A	–	–	1	V
	VCE(SAT2)	IC = 5A, IB =1A	–	–	1.5	
	VCE(SAT3)	IC = 8A, IB =2A	–	–	3	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC = 2A, IB =0.4A	–	–	1.2	V
	VBE(SAT2)	IC = 5A, IB =1A	–	–	1.6	

Dynamic

Frequency	f _T	VCE = 10V, IC=0.5A	4	–	–	MHz
Output Capacitance	Cob	VCB = 10V, f=0.1MHz	–	180	–	pF

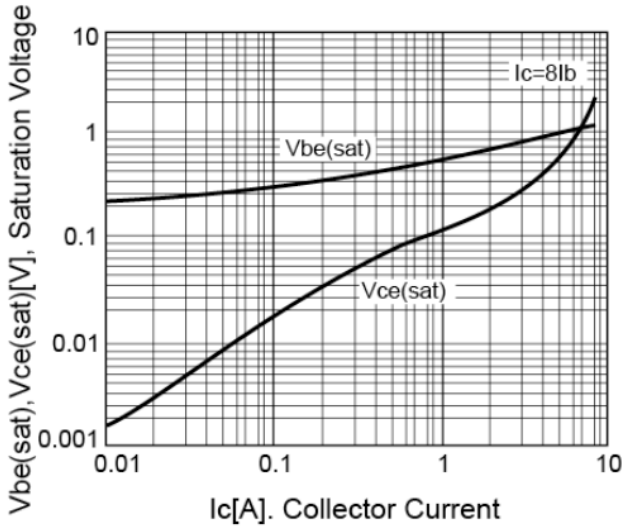
Resistive Load Switching Time (Ratings)

Delay Time	t _d	V _{cc} =125V, IC=5A, IB1=1A, IB2=1A, tp=25uS Duty Cycle ≤ 2%	–	0.06	0.1	uS
Rise Time	t _r		–	0.45	1	uS
Storage Time	t _{STG}		–	2.8	3	uS
Fall Time	t _f		–	0.3	0.7	uS

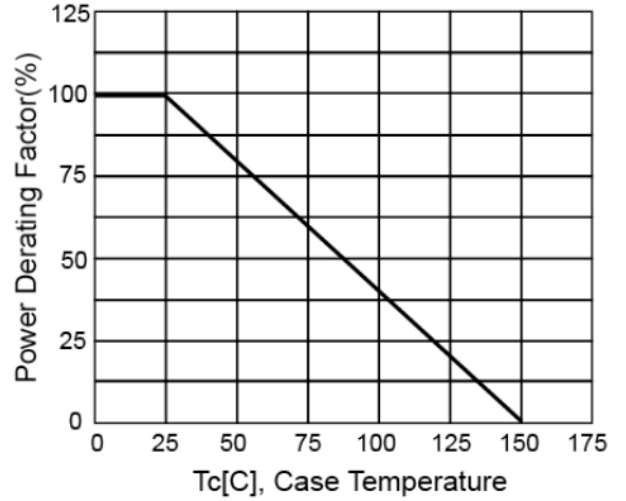
Note: Pulse test: pulse width ≤ 300uS, duty cycle ≤ 2%

Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

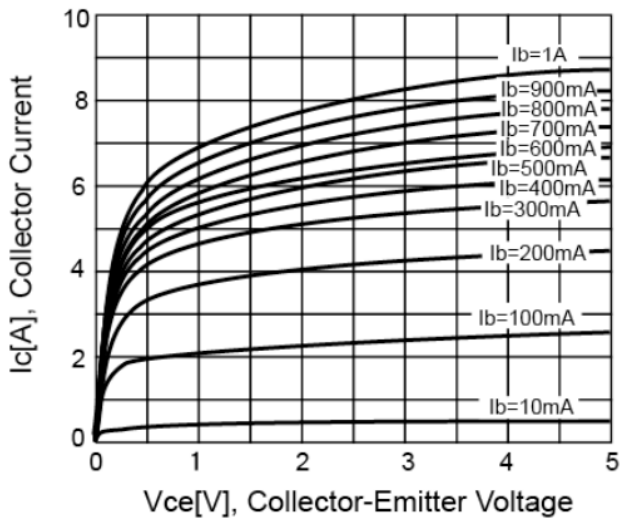
$V_{CE(sat)}$ V.S. $V_{BE(sat)}$



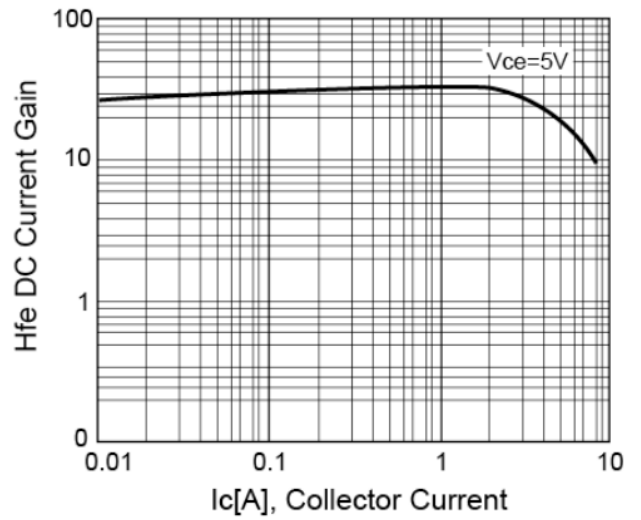
Power Derating



Static Characteristics



DC Current Gain



Ordering Information

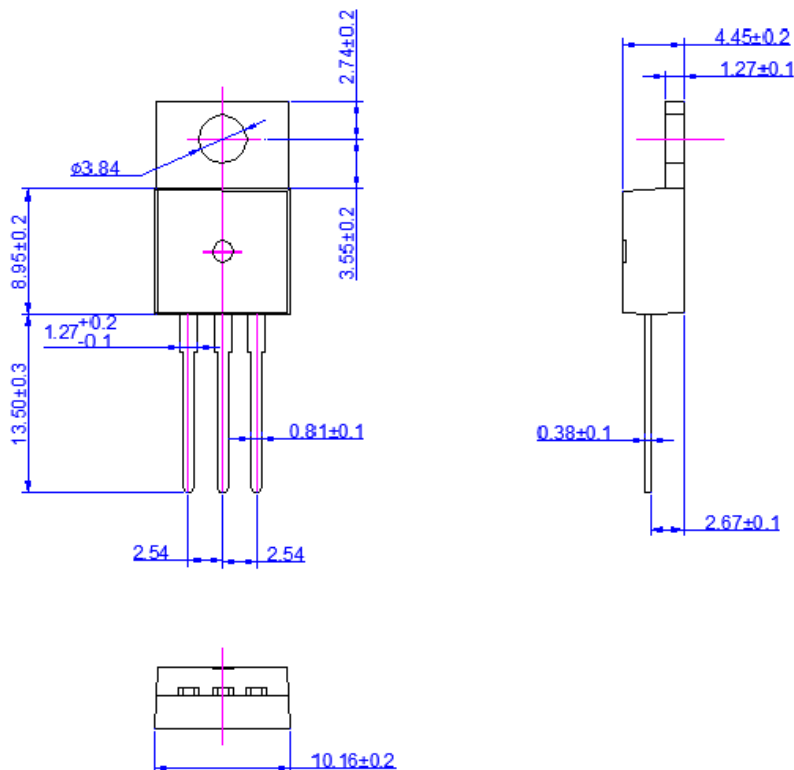
Type NO	Marking	Package Code
WTX13007	13007	TO-220

Marking and Pin Define



First Line	WTC	Company Name	
Second Line	13007	Product Code	
Third Line	BB0TX	1st (Year Code)	A-2010 B-2011 C-2012 D-2013 ...
		2nd (Month Code)	A-Jan, B-Feb, C-Mar, D-Apr, E-May, F-Jun, G-Jul, H-Aug, I-Sep, J-Oct, K-Nov, L-Dec
		3rd (Lot Code)	0~9, A~Z
		4th (Product Code)	M - MOS, T - Transistor, L - Linear
		5th (Package Code)	I - TO251, D - TO252, L - TO92, M - TO126, X - TO220, F - TO220F, Y - SOT89, S - SOP8
		6th (Spec Code)	(Reserve)

TO-220 Package Dimension



Ordering Information

Type NO	Marking	Package Code
WTF13007	13007	TO-220F

Marking and Pin Define



First Line	WTC	Company Name			
Second Line	13007	Product Code			
Third Line	BBOTF	1st (Year Code)	A-2010 B-2011 C-2012 D-2013 ...		
		2nd (Month Code)	A-Jan, B-Feb, C-Mar, D-Apr, E-May, F-Jun, G-Jul, H-Aug, I-Sep, J-Oct, K-Nov, L-Dec		
		3rd (Lot Code)	0-9, A-Z		
		4th (Product Code)	M - MOS, T - Transistor, L - Linear		
		5th (Package Code)	I - TO251, D - TO252, L - TO92, M - TO126, X - TO220, F - TO220F, Y - SOT89, S - S0P8		
		6th (Spec Code)	(Reserve)		

TO-220F Package Dimension

