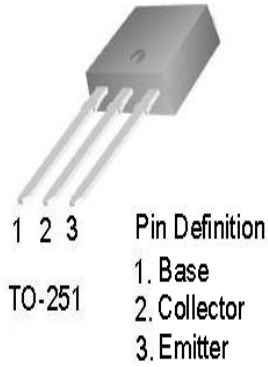
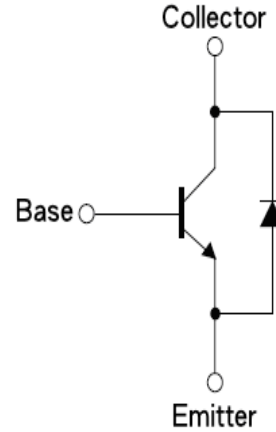


### High Voltage NPN Transistor



### INTERNAL SCHEMATIC DIAGRAM



### Features

- High Voltage
- Very High Switch Speed
- $BV_{CEO}$  : 400V
- $BV_{CBO}$  : 800V
- $I_C$  : 1.5A
- Silicon Triple Diffused Type

### Application

- Electronic Ballasts
- Adapter
- Lighting

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

Parameter	Symbol	Max Rating	Unit
Collector-Base Voltage	VCBO	800	V
Collect-Break Down Voltage	VCES	800	V
Collector-Emitter Voltage	VCEO	400	V
Emitter-Base Voltage	VEBO	9	V
Collector Current(DC)	IC	1.5	A
Collector Current(Pulse)	ICP	2	A
Total Power Dissipation(TO92)	PD	1.5	W
Total Power Dissipation(TO251)		30	
Junction Temperature	TJ	150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( T<sub>c</sub> = 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 = 1mA, IE=0	400	—	—	V
Emitter- Base Breakdown Voltage	BVEBO	IE = 1mA, IC=0	9	—	—	V
Collector Cutoff Current	ICBO	VCB = 700V, IE=0	—	—	1	μA
Emitter Cutoff Current	IEBO	VEB = 9V, IC=0	—	—	1	μA
DC Current Gain	hFE1	VCE = 10V, IC=10mA	20	—	—	
	hFE2	VCE = 10V, IC=100mA	25	—	45	
	hFE3	VCE = 10V, IC=280mA	20	—	—	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 50mA / 10mA	—	—	0.5	V
	VCE(SAT2)	IC/IB = 100mA / 10mA	—	—	1	
	VCE(SAT3)	IC/IB = 200mA / 20mA	—	—	3	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 50mA / 10mA	—	—	1.15	V
	VBE(SAT2)	IC/IB = 100mA / 10mA	—	—	1.25	

**Dynamic**

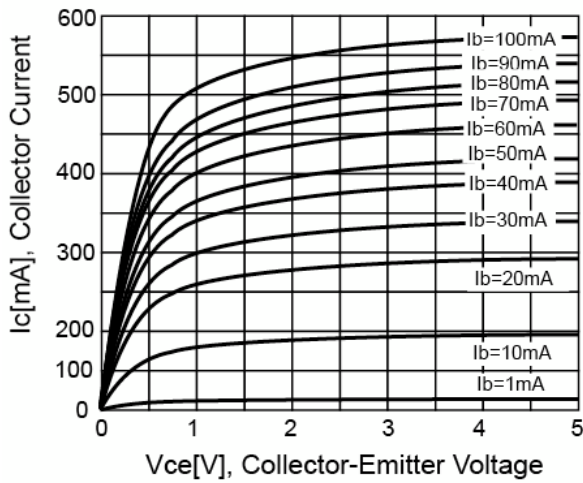
Frequency	f <sub>T</sub>	VCE=10V, IC=0.1A	4	—	—	MHz
Output Capacitance	Cob	VCB=10V, f=01.MHz	—	21	—	pF

**Resistive Load Switching Time (Ratings)**

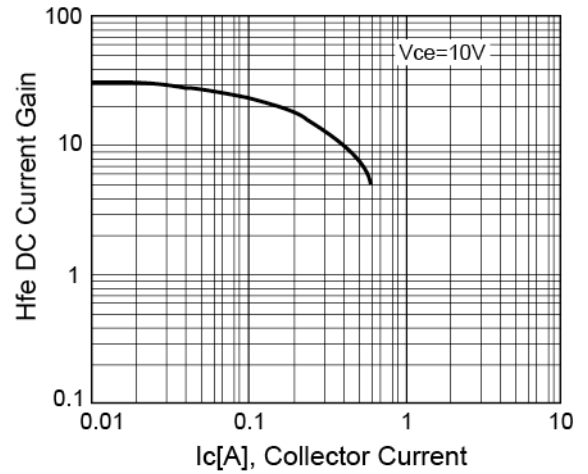
Rise Time	t <sub>r</sub>	Vcc=125V, IC=100mA,	—	—	2	uS
Storage Time	t <sub>STG</sub>	IB1 = IB2 = 20mA,	—	5	6	uS
Fall Time	t <sub>f</sub>	tp = 25uS Duty Cycle ≤ 1%	—	0.2	0.7	uS

### Electrical Characteristic Curves

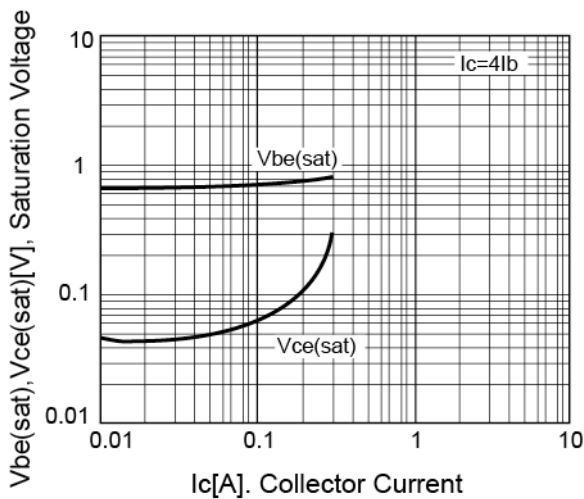
Static Characteristics



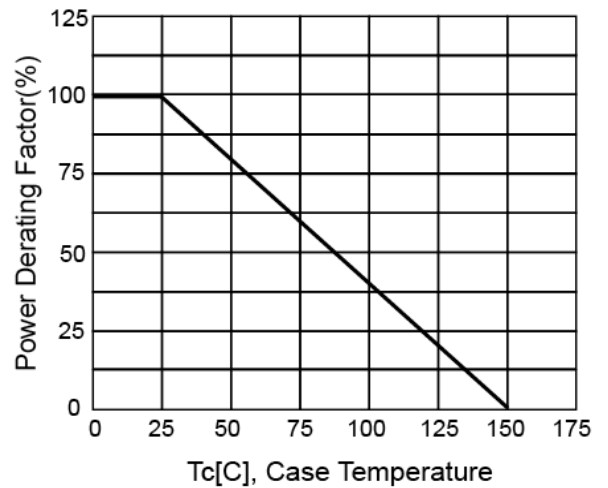
DC Current Gain



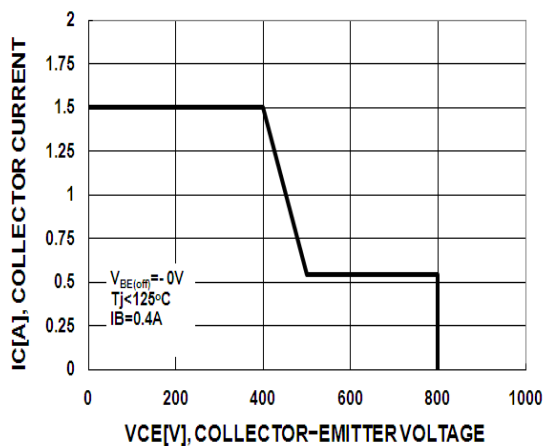
$V_{CE(SAT)}$  v.s.  $V_{BE(SAT)}$



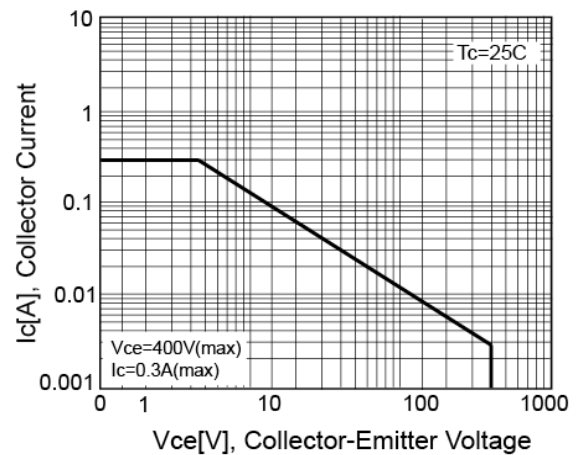
Power Derating



Reverse Bias SOA



Safety Operating Area



### Ordering Information

Type NO	Marking	Package Code
WTBV116DI	116DI	TO-251

### Marking and Pin Define

First Line	WTC	Company Name	
Second Line	116DI	Product Code	
Third Line	A J 0 T M	1st (Year Code)	A-2010 B-2011 C-2012 ...
		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-251 Package Dimension

