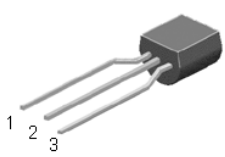


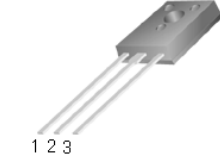
High Voltage NPN Transistor



TO-92

Pin Definition

- 1. Emitter
- 2. Collector
- 3. Base



TO-126

Pin Definition

- 1. Emitter
- 2. Collector
- 3. Base

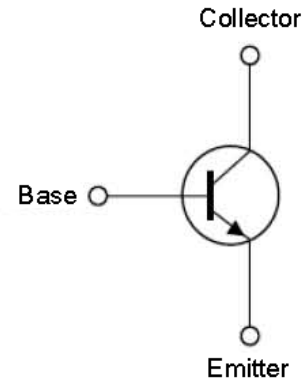
Features

- High Voltage
- Very High Switch Speed
- $BV_{CEO} : 400V$
- $BV_{CBO} : 700V$
- $I_C : 0.75A$
- $V_{CE(SAT)} : 1.5V @ I_C / I_B = 200mA / 20mA$
- Silicon Triple Diffused Type

Application

- Electronic Ballasts
- Adapter
- Lighting

INTERNAL SCHMATIC DIAGRAM



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

Parameter	Symbol	Max Rating	Unit
Collector-Base Voltage	VCBO	700	V
Collector-Emitter Voltage	VCEO	400	V
Emitter-Base Voltage	VEBO	9	V
Collector Current(DC)	IC	0.75	A
Collector Current(Pulse)	ICP	1.5	A
Total Power Dissipation(TO92)	PD	1.5	W
Total Power Dissipation(TO126)		20	
Junction Temperature	TJ	150	$^{\circ}C$
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Voltage	BVCBO	I _C = 1mA, I _B =0	700	—	—	V
Collector-Emitter Breakdown Voltage	BVCEO	I _C = 1mA, I _E =0	400	—	—	V
Emitter- Base Breakdown Voltage	BVEBO	I _E = 1mA, I _C =0	9	—	—	V
Collector Cutoff Current	ICBO	V _{CB} = 700V, I _E =0	—	—	1	μA
Emitter Cutoff Current	IEBO	V _{EB} = 7V, I _C =0	—	—	1	μA
DC Current Gain	hFE1	V _{CE} = 10V, I _C =10mA	15	—	40	
	hFE2	V _{CE} = 10V, I _C =100mA	25	—	40	
	hFE3	V _{CE} = 10V, I _C =280mA	12	—	24	
Collector-Emitter Saturation Voltage	VCE(SAT1)	I _C /I _B = 50mA / 10mA	—	0.2	0.4	V
	VCE(SAT2)	I _C /I _B = 100mA / 10mA	—	0.45	1	
	VCE(SAT3)	I _C /I _B = 200mA / 20mA	—	1	1.5	
Base-Emitter Saturation Voltage	VBE(SAT1)	I _C /I _B = 50mA / 10mA	—	—	1	V
	VBE(SAT2)	I _C /I _B = 100mA / 10mA	—	—	1.2	

Dynamic

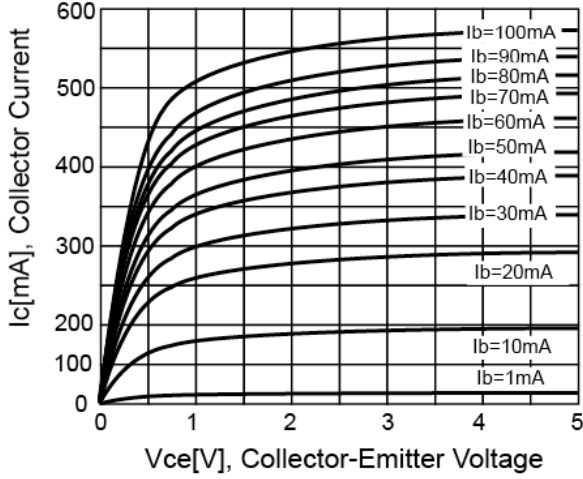
Frequency	f _r	V _{CE} =10V, I _C =0.1A	4	—	—	MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=01.MHz	—	21	—	pF

Resistive Load Switching Time (Ratings)

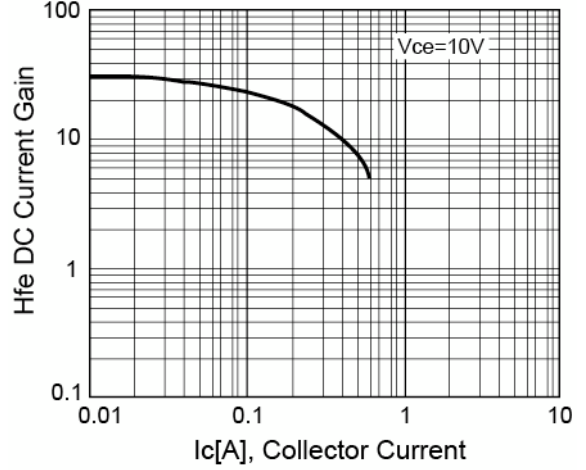
Rise Time	t _r	V _{CC} =125V, I _C =100mA,	—	1.1	—	μS
Storage Time	t _{STG}	I _{B1} = I _{B2} = 20mA, t _p = 25μS	—	2	4	μS
Fall Time	t _f	Duty Cycle ≤ 1%	—	0.2	0.7	μS

Electrical Characteristic Curves

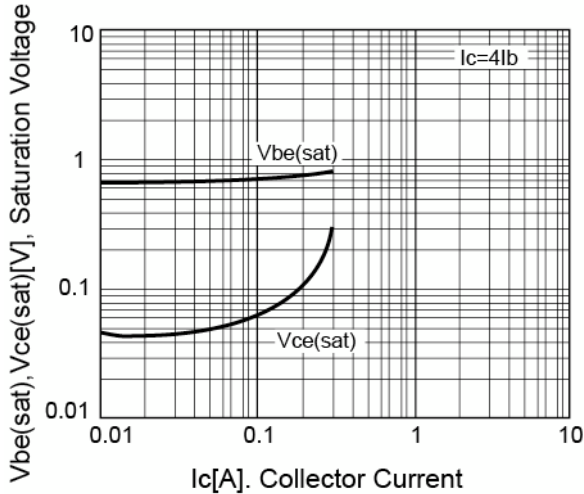
Static Characteristics



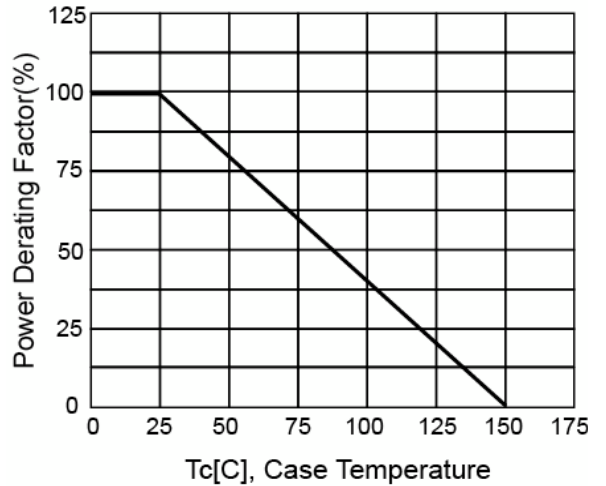
DC Current Gain



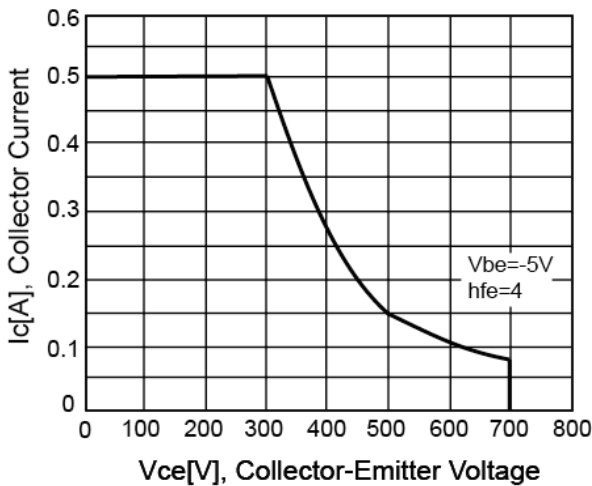
$V_{ce(sat)}$ v.s. $V_{be(sat)}$



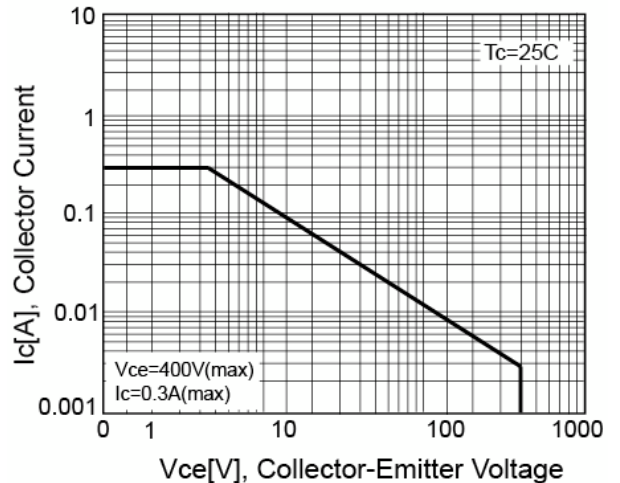
Power Derating



Reverse Bias SOA



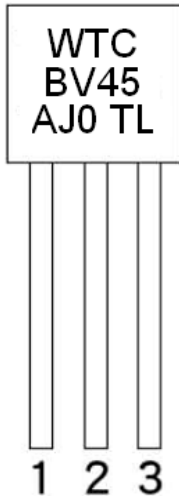
Safety Operating Area



Ordering Information

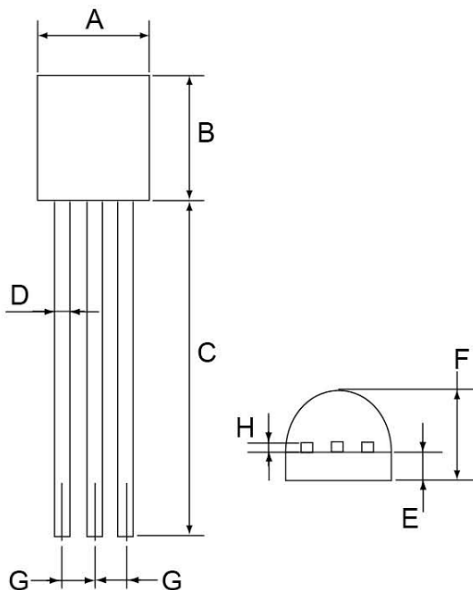
Type NO	Marking	Package Code
WTBV45	BV45	TO-92

Marking and Pin Define



First Line	WTC	Company Name	
Second Line	BV45	Product Code	
Third Line	AJ0 TL	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)	0~1, A~9
		4th (Product Code)	M - MOS, T - Transistor
		5th (Package Code)	D - TO-252, L - TO-92
		6th (Spec Code)	(Reserve)

TO-92 Package Dimension



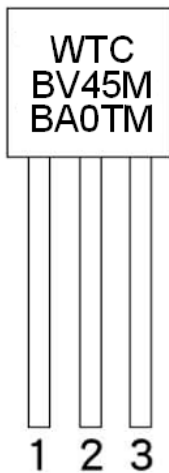
DIM	TO-92 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.0	4.7	0.157	0.185
B	4.3	4.8	0.169	0.189
C	12.8	13.8	0.522	0.56
D	0.4	0.5	0.015	0.020
E	1.05	1.28	0.41	0.5
F	3.05	3.7	0.12	0.146
G	1.27	1.31	0.05	0.051
H	0.29	0.43	0.011	0.017

Unit : mm

Ordering Information

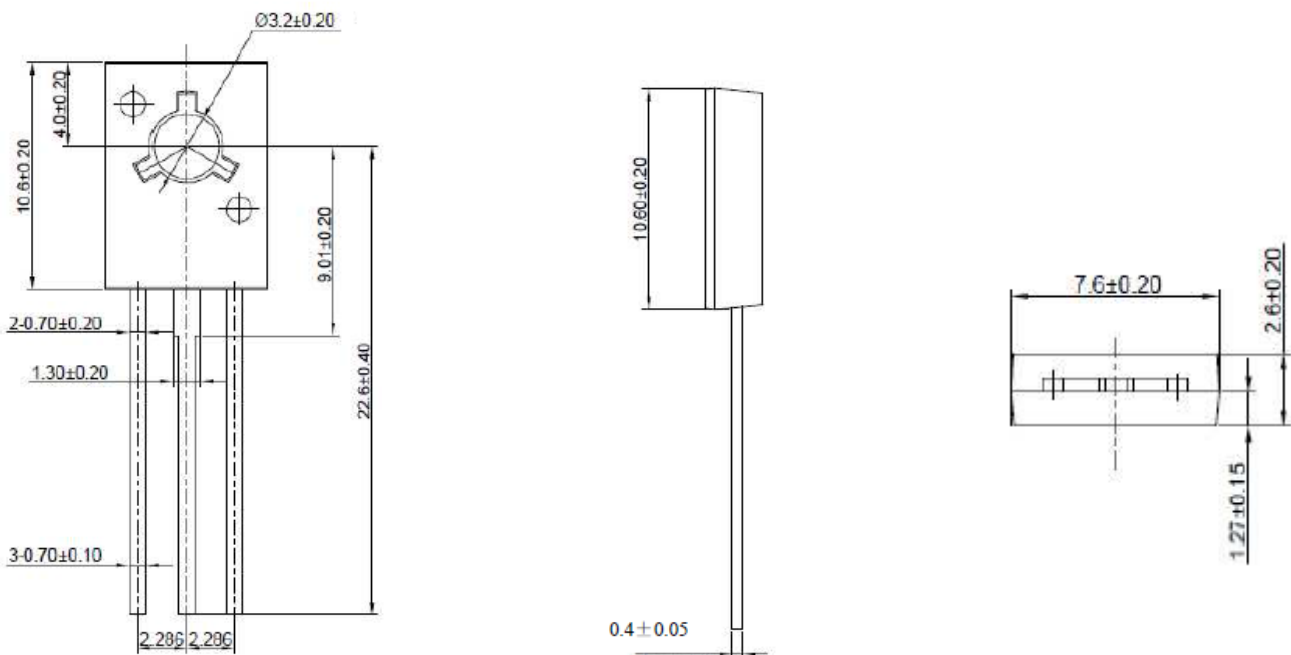
Type NO	Marking	Package Code
WTBV45M	BV45M	TO-126

Marking and Pin Define



First Line	WTC	Company Name	
Second Line	BV45M	Product Code	
Third Line	BA0TM	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)	0~1, A~9
		4th (Product Code)	M-MOS, T-Transistor
		5th (Package Code)	I-T0251, D-T0252, L-T092, M-T0126
		6th (Spec Code)	(Reserve)

TO-126 Package Dimension



Unit : mm