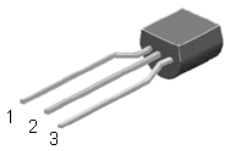


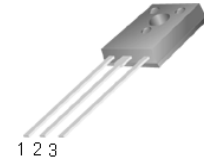
High Voltage NPN Transistor



TO-92

Pin Definition

1. Emitter
2. Collector
3. Base

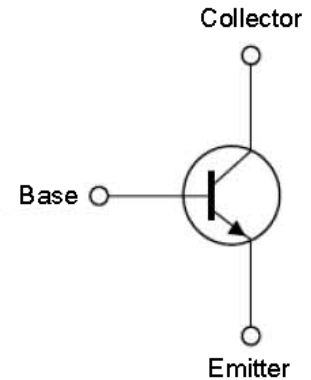


TO-126

Pin Definition

1. Emitter
2. Collector
3. Base

INTERNAL SCHMATIC DIAGRAM



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

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	°C
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (T_c = 25°C)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Voltage	BVCBO	IC = 1mA, IB=0	700	—	—	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 = 7V, IC=0	—	—	1	μA
DC Current Gain	hFE1	VCE = 10V, IC=10mA	15	—	40	
	hFE2	VCE = 10V, IC=100mA	25	—	40	
	hFE3	VCE = 10V, IC=280mA	12	—	24	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 50mA / 10mA	—	0.2	0.4	V
	VCE(SAT2)	IC/IB = 1000mA / 10mA	—	0.45	1	
	VCE(SAT3)	IC/IB = 200mA / 20mA	—	1	1.5	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 50mA / 10mA	—	—	1	V
	VBE(SAT2)	IC/IB = 100mA / 10mA	—	—	1.2	

Dynamic

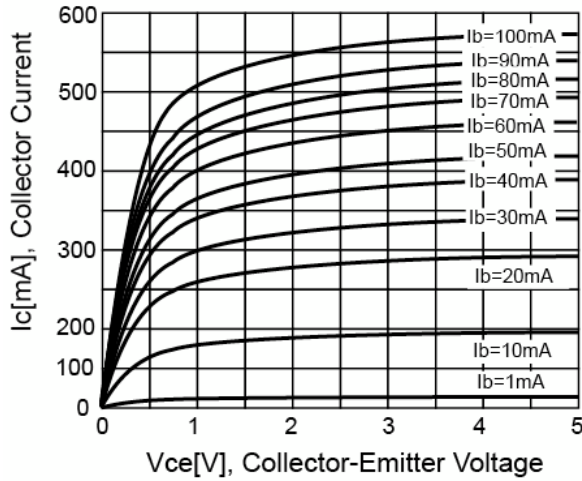
Frequency	f _T	VCE=10V, IC=0.1A	4	—	—	MHz
Output Capacitance	Cob	VCB=10V, f=0.1MHz	—	21	—	pF

Resistive Load Switching Time (Ratings)

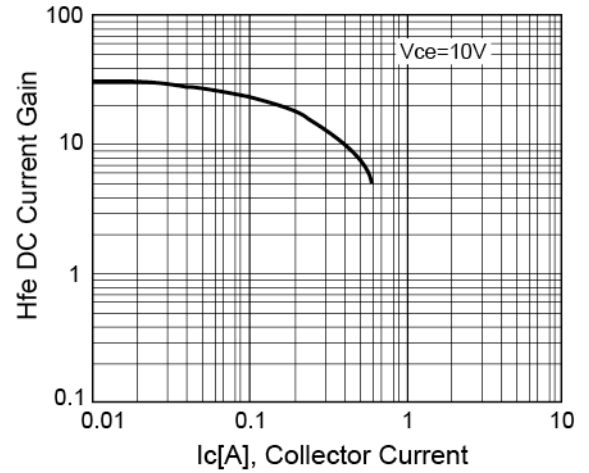
Rise Time	t _r	Vcc=125V, IC=100mA, IB1 = IB2 = 20mA, tp = 25μs Duty Cycle ≤ 1%	—	1.1	—	μs
Storage Time	t _{STG}		—	2	4	μs
Fall Time	t _f		—	0.2	0.7	μs

Electrical Characteristic Curves

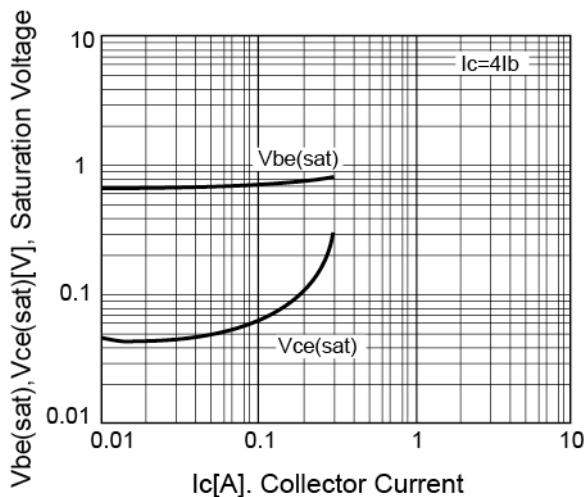
Static Characteristics



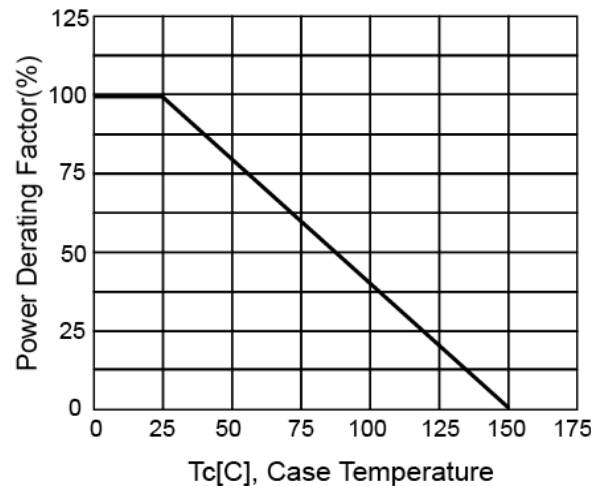
DC Current Gain



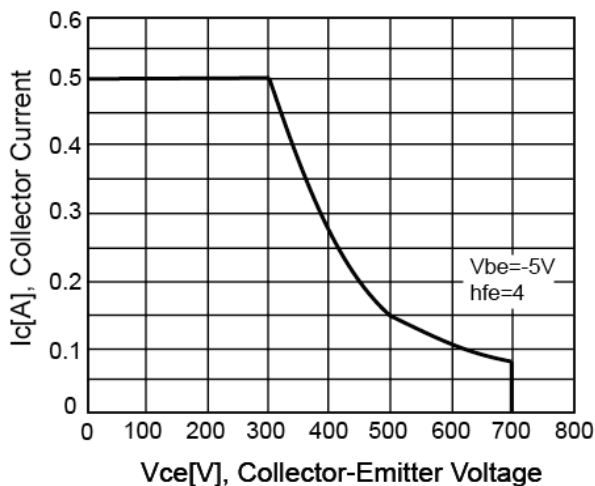
$V_{ce(sat)}$ v.s. $V_{be(sat)}$



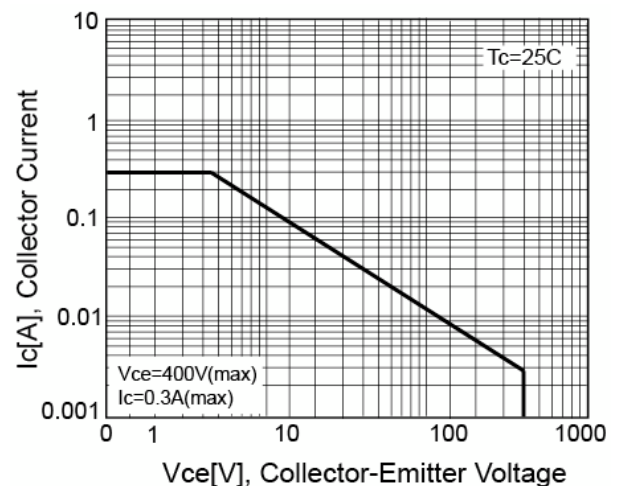
Power Derating



Reverse Bias SOA



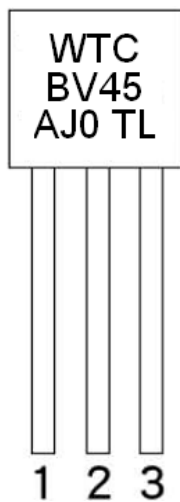
Safety Operating Area



Ordering Information

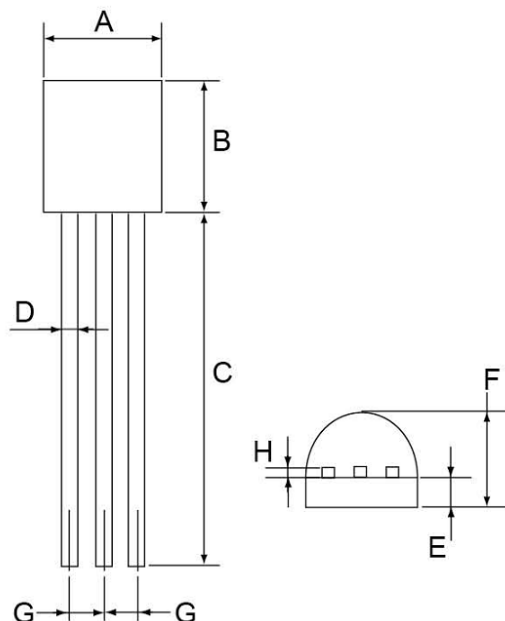
Type NO	Marking	Package Code
WTBV45	BV45	TO-92

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

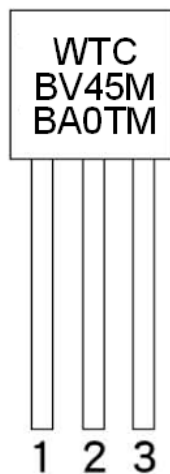


TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.3	4.7	0.169	0.185
B	4.3	4.7	0.169	0.185
C	13.53(typ)		0.532(typ)	
D	0.39	0.49	0.015	0.019
E	1.18	1.28	0.046	0.5
F	3.3	3.7	0.13	0.146
G	1.27	1.31	0.05	0.051
H	0.33	0.43	0.013	0.017

Ordering Information

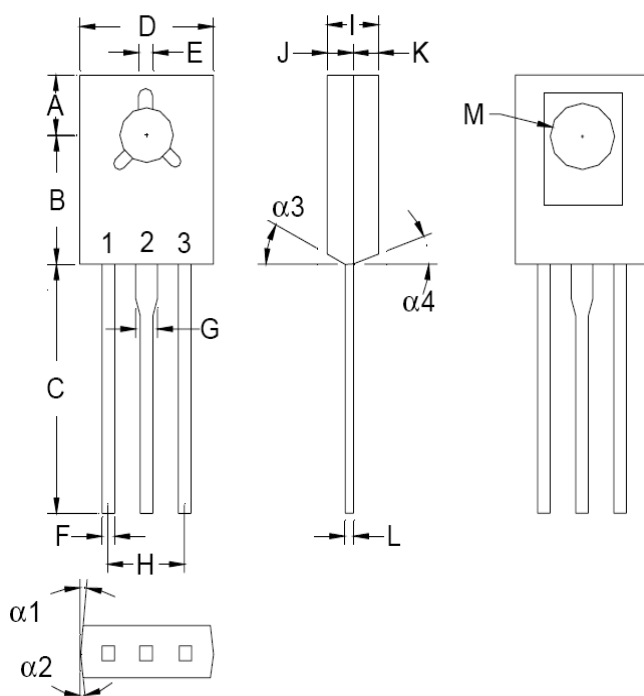
Type NO	Marking	Package Code
WTBV45M	BV45M	TO-126

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-TO251, D-TO252, L-TO92, M-TO126
		6th (Spec Code)	(Reserve)

TO-126 Package Dimension



TO-126 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
$\alpha 1$	—	3°C	—	3°C
$\alpha 2$	—	3°C	—	3°C
$\alpha 3$	—	3°C	—	3°C
$\alpha 4$	—	3°C	—	3°C
A	0.15	0.153	3.81	3.91
B	0.275	0.279	6.99	7.09
C	0.531	0.61	13.5	15.5
D	0.285	0.303	7.52	7.72
E	0.034	0.041	0.95	1.05
F	0.028	0.031	0.71	0.81
G	0.048	0.052	1.22	1.32
H	0.17	0.189	4.34	4.8
I	0.095	0.105	2.41	2.66
J	0.045	0.055	1.14	1.39
K	0.045	0.055	1.14	1.39
L	—	0.021	—	0.55
M	0.137	0.152	3.5	3.86