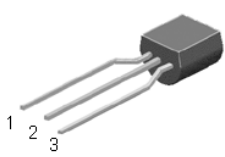


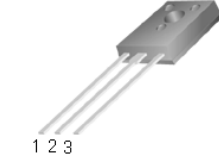
High Voltage NPN Transistor



TO-92

Pin Definition

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

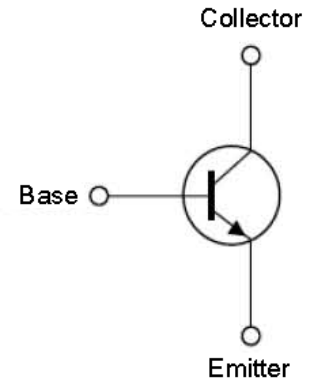


TO-126

Pin Definition

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

INTERNAL SCHMATIC DIAGRAM



Features

- High Voltage
- Very High Switch Speed
- $BV_{CEO} : 400V$
- $BV_{CBO} : 800V$
- $I_C : 1.5A$
- $V_{CE(SAT)} : 2V@I_C / I_B=800mA / 200mA$
- Silicon Triple Diffused Type

Application

- Electronic Ballasts
- Adapter
- Lighting

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

Parameter	Symbol	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(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	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 _T	VCE=10V, IC=0.1A	4	–	–	MHz
Output Capacitance	C _{ob}	VCB=10V, f=01.MHz	–	21	–	pF

Resistive Load Switching Time (Ratings)

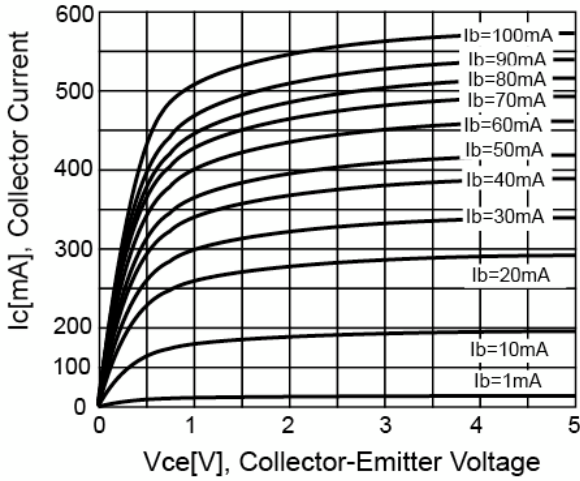
Rise Time	t _r	V _{cc} =125V, IC=100mA,	–	–	2	uS
Storage Time	t _{STG}	IB1 = IB2 = 20mA, tp = 25uS	–	5	6	uS
Fall Time	t _f	Duty Cycle ≤ 1%	–	0.2	0.7	uS

Thermal Performance

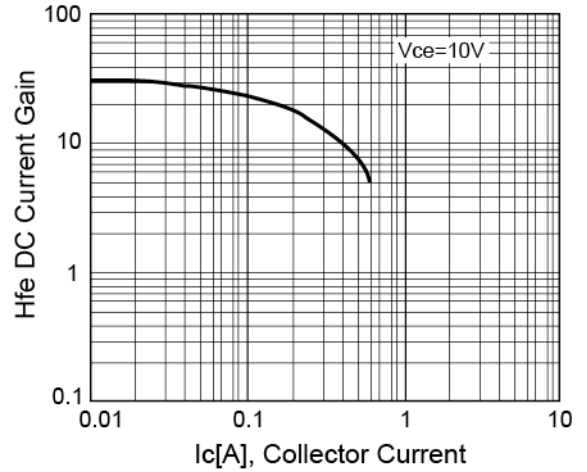
Parameter	Symbol	Limit	Unit
Junction to Ambient Thermal Resistance (TO92)	R _{θJA}	122	°C/W
Junction to Ambient Thermal Resistance (TO126)		90	

Electrical Characteristic Curves

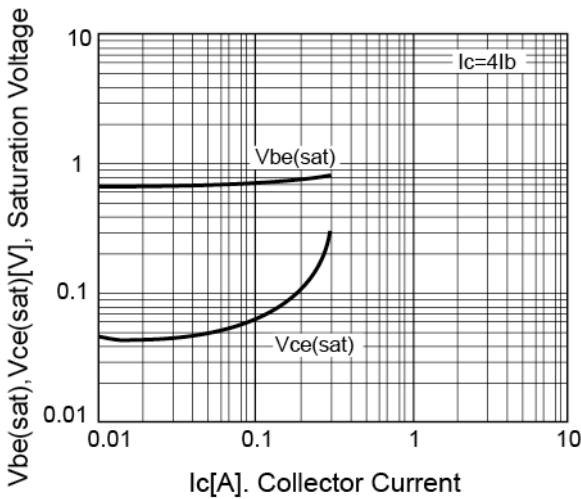
Static Characteristics



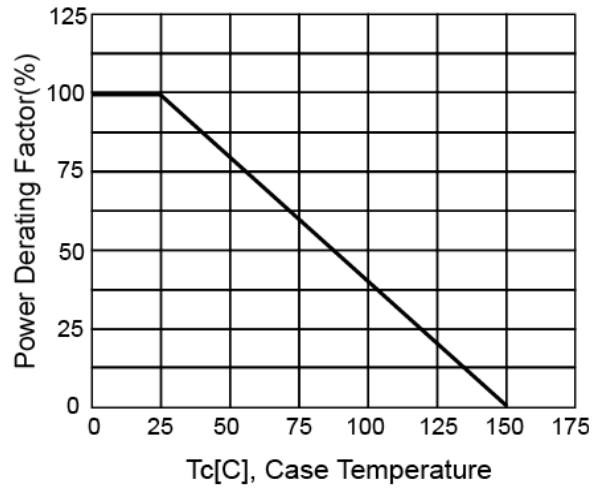
DC Current Gain



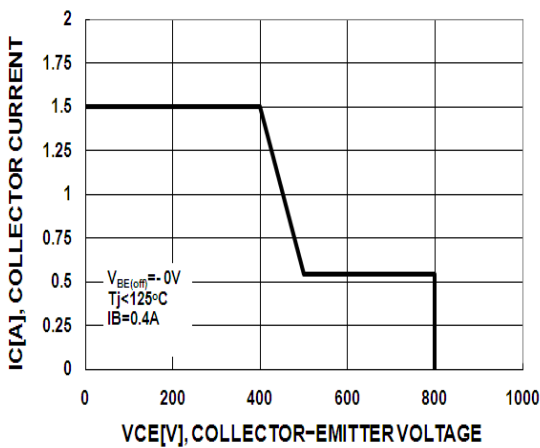
VCE(SAT) v.s. VBE(SAT)



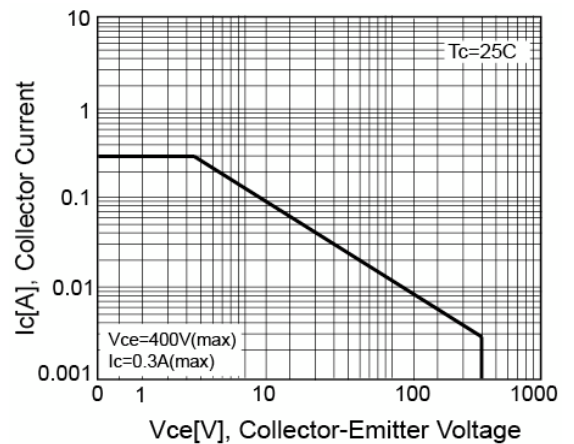
Power Derating



Reverse Bias SOA



Safety Operating Area



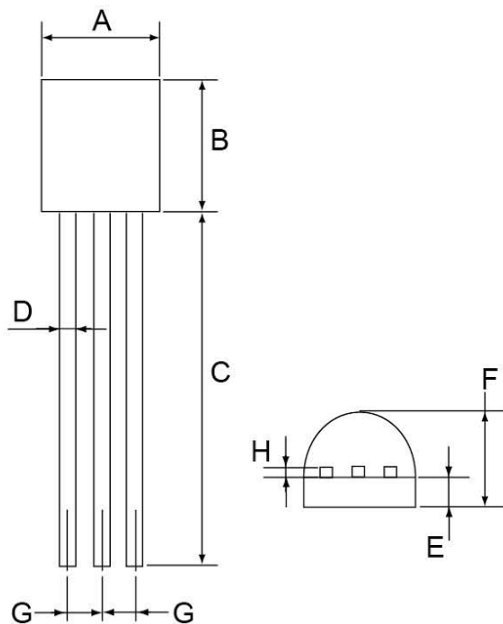
Ordering Information

Type NO	Marking	Package Code
WTBV46	BV46	TO-92

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV46	Product Code	
Third Line	A J 0 T L	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-92 Package Dimension



DIM	TO-92 DIMENSION			
	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

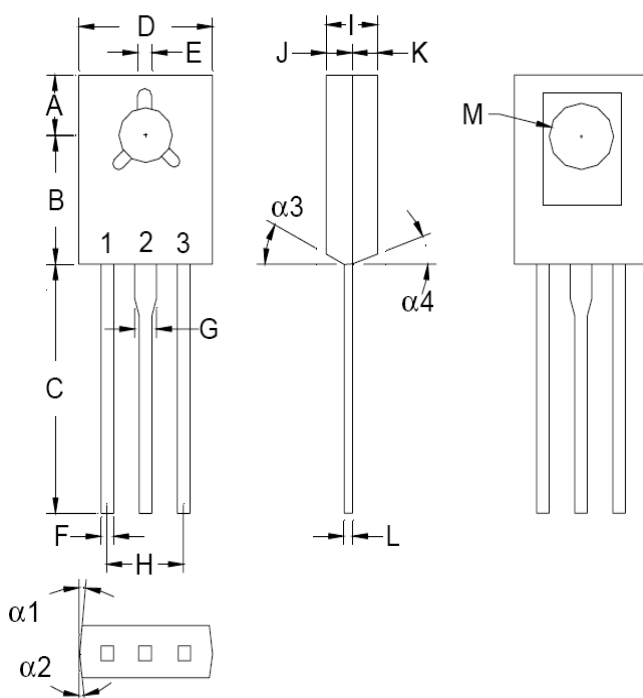
Ordering Information

Type NO	Marking	Package Code
WTBV46M	BV46M	TO-126

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV46M	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-126 Package Dimension



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
α1	—	3°	—	3°
α2	—	3°	—	3°
α3	—	3°	—	3°
α4	—	3°	—	3°
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