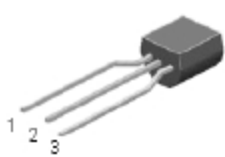


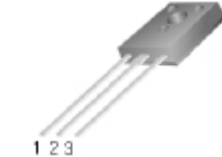
High Voltage NPN Transistor



TO-92

Pin Definition

1. Emitter
2. Collector
3. Base



TO-126

Pin Definition

1. Emitter
2. Collector
3. Base

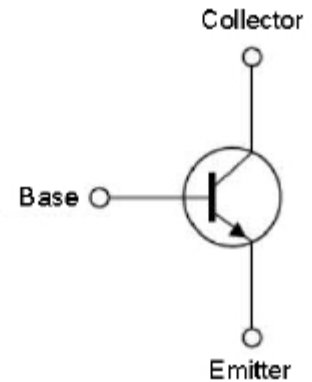
Features

- High Voltage
- Very High Switch Speed
- $BV_{CEO} : 400V$
- $BV_{CBO} : 800V$
- $I_c : 1.5A$
- $V_{CE(SAT)} : 0.8V@I_c / I_B=0.5A / 0.1A$

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	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	3	A
Total Power Dissipation(TO92)	Ptot	1.5	W
Total Power Dissipation(TO126)		30	
Junction Temperature	TJ	150	$^{\circ}C$
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

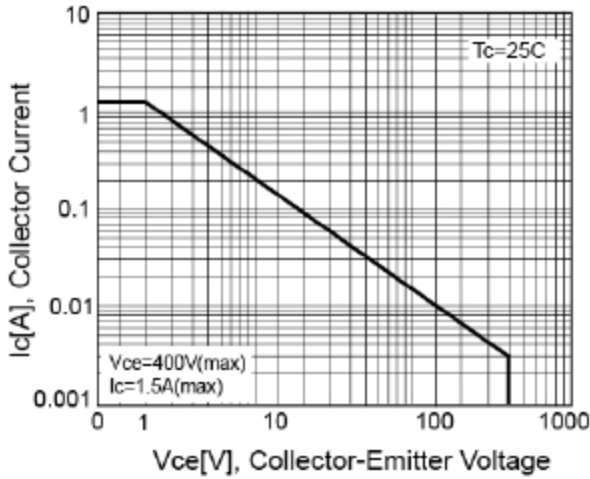
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Voltage	BVCBO	$I_C = 1\text{mA}, I_B = 0$	700	—	—	V
Collector-Emitter Breakdown Voltage	BVCEO	$I_C = 10\text{mA}, I_E = 0$	400	—	—	V
Emitter- Base Breakdown Voltage	BVEBO	$I_E = 1\text{mA}, I_C = 0$	9	—	—	V
Collector Cutoff Current	ICBO	$V_{CB} = 700\text{V}, I_E = 0$	—	—	1	μA
Emitter Cutoff Current	IEBO	$V_{EB} = 9\text{V}, I_C = 0$	—	—	1	μA
DC Current Gain	hFE1	$V_{CE} = 5\text{V}, I_C = 1\text{mA}$	5	—	40	
	hFE2	$V_{CE} = 10\text{V}, I_C = 400\text{mA}$	20	—	40	
	hFE3	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	5	—	40	
Collector-Emitter Saturation Voltage	VCE(SAT1)	$I_C/I_B = 0.5\text{A} / 0.1\text{A}$	—	0.25	0.5	V
	VCE(SAT2)	$I_C/I_B = 1.0\text{A} / 0.25\text{A}$	—	0.5	1	
	VCE(SAT3)	$I_C/I_B = 1.5\text{A} / 0.5\text{A}$	—	1.2	3	
Base-Emitter Saturation Voltage	VBE(SAT1)	$I_C/I_B = 0.5\text{A} / 0.1\text{A}$	—	—	1.2	V
	VBE(SAT2)	$I_C/I_B = 1.0\text{A} / 0.25\text{A}$	—	—	1.4	

Parameter	Symbol	Limit	Unit
Junction to Ambient Thermal Resistance (TO92)	Rth(J-A)	122	$^\circ\text{C/W}$
Junction to Ambient Thermal Resistance (TO126)		90	

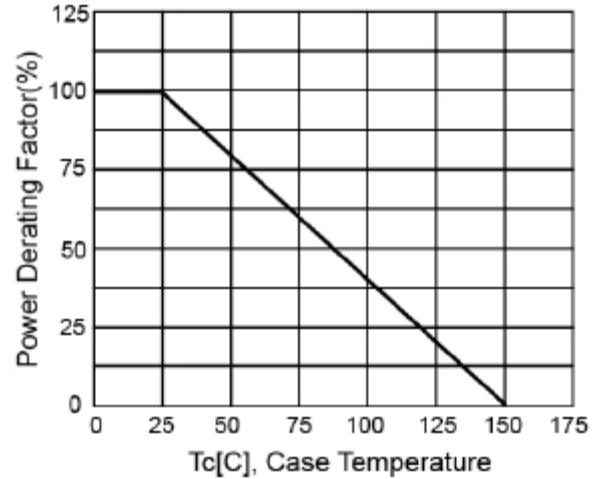
Rise Time	t_r	$V_{CC} = 125\text{V}, I_C = 500\text{A},$ $I_{B1} = I_{B2} = 0.2\text{A},$ $t_p = 25\mu\text{S}$	—	0.5	1	μS
Storage Time	t_{STG}		—	2	4	μS
Fall Time	t_f		—	0.4	0.7	μS

Electrical Characteristic Curves (Ta=25°C, unless otherwise noted)

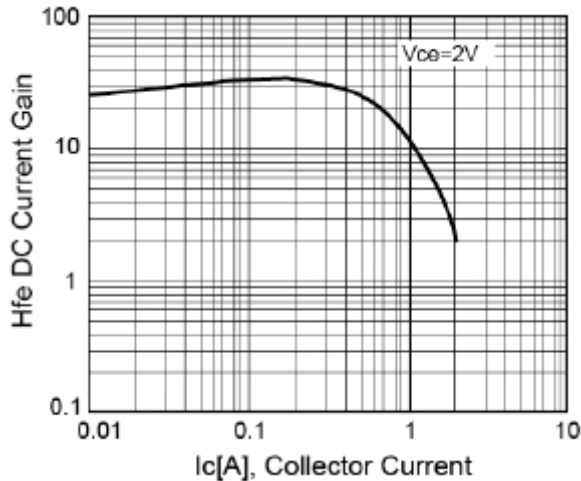
Safety Operating Area



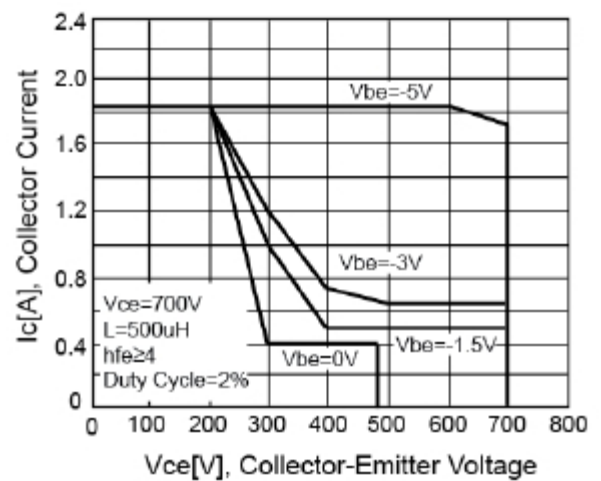
Power Derating



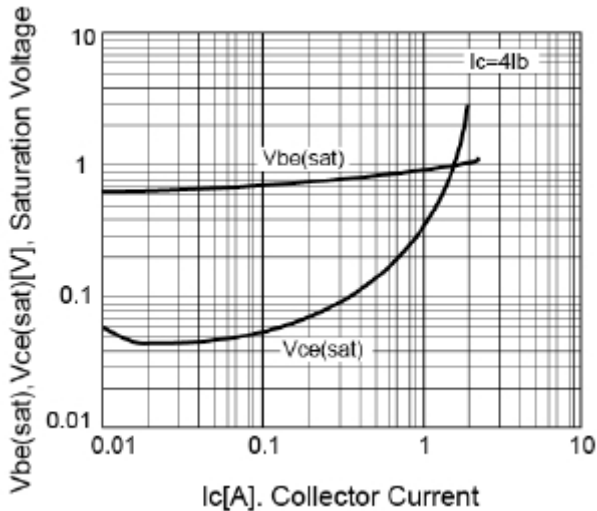
DC Current Gain



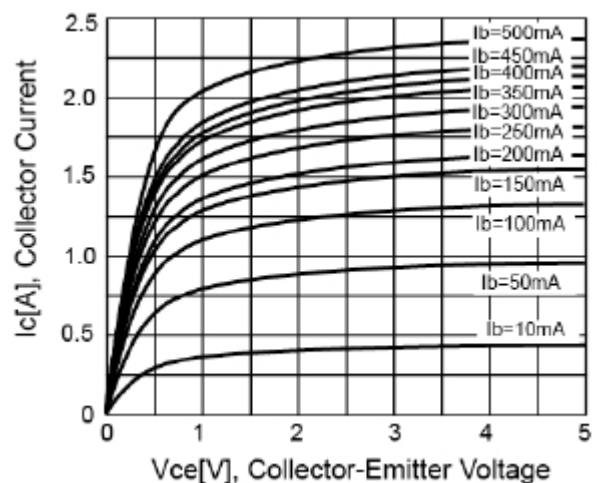
Reverse Bias SOA



VCE(SAT) V.S. VBE(SAT)



Static Characteristics



Ordering Information

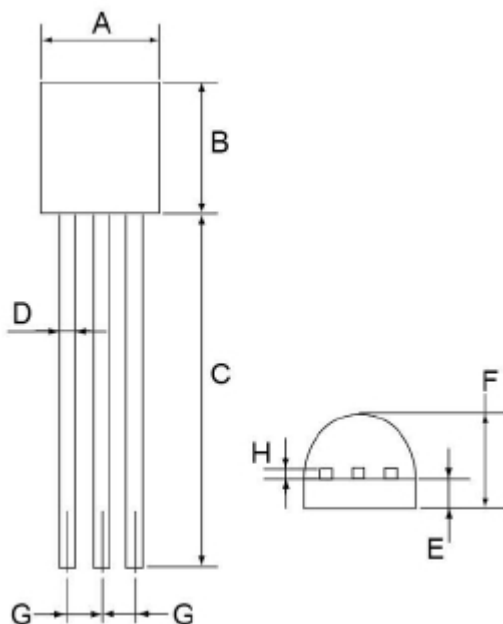
Type NO	Marking	Package Code
WTBV47L	BV47	TO-92

Marking and Pin Define



First Line	WTC	Company Name	
Second Line	BV47	Product Code	
Third Line	AK0 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-T0252, L-T092, M-T0126
		6th (Spec Code)	(Reserve)

TO-92 Package Dimension



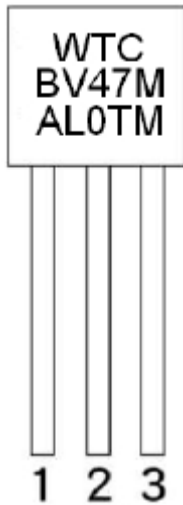
DIM	TO-92 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.0	4.7	0.157	0.185
B	4.3	4.8	0.169	0.189
C	12.8	13.8	0.522	0.56
D	0.4	0.5	0.015	0.020
E	1.05	1.28	0.41	0.5
F	3.05	3.7	0.12	0.146
G	1.27	1.31	0.05	0.051
H	0.29	0.43	0.011	0.017

Unit : mm

Ordering Information

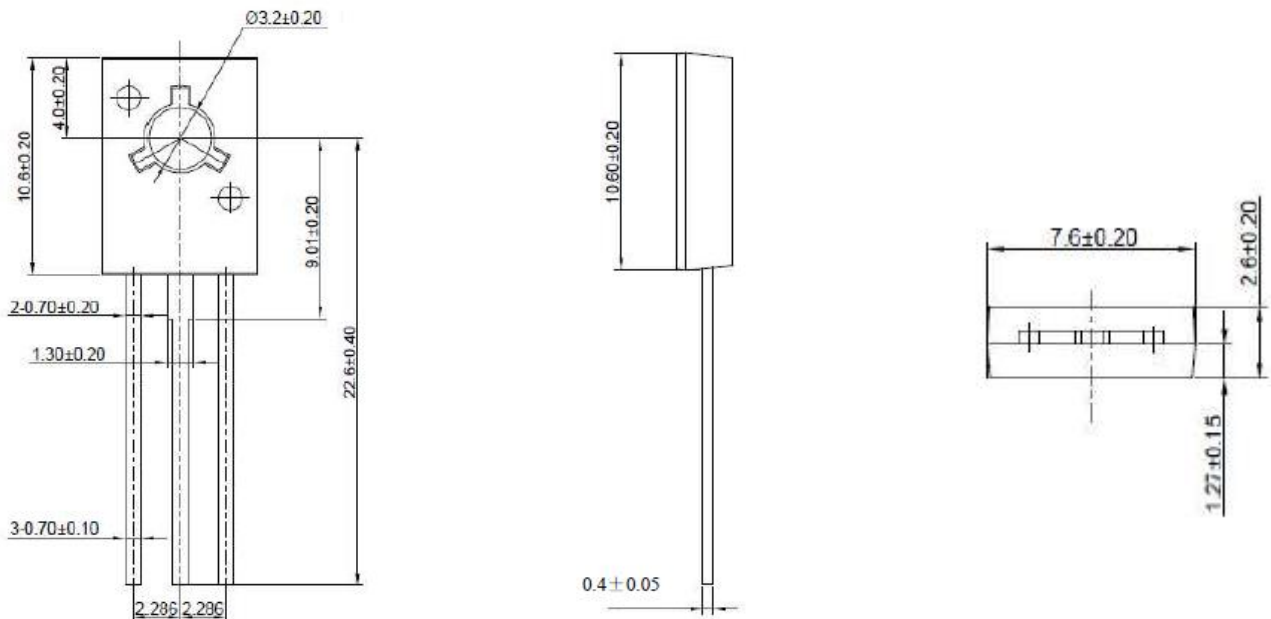
Type NO	Marking	Package Code
WTBV47M	BV47M	TO-126

Marking and Pin Define



First Line	WTC	Company Name	
Second Line	BV47M	Product Code	
Third Line	A L O 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)	0-1, A-9
		4th (Product Code)	M-MOS, T-Transistor
		5th (Package Code)	D - TO252, L - TO92, M - TO126
		6th (Spec Code)	(Reserve)

TO-126 Package Dimension



Unit : mm