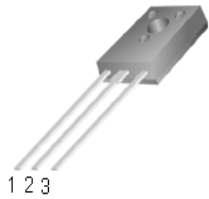


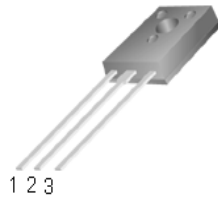
High Voltage NPN Transistor



TO-126

Pin Definition

1. Emitter
2. Collector
3. Base



TO-126 R

Pin Definition

1. Base
2. Collector
3. Emitter



TO-251

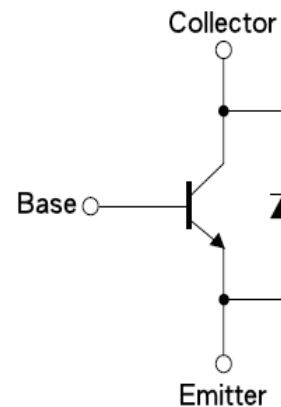
Pin Definition

1. Base
2. Collector
3. Emitter

Features

- High Voltage
- Very High Switch Speed
- $BV_{CEO} : 400V$
- $BV_{CBO} : 800V$
- $I_C : 4A$
- Silicon Triple Diffused Type

INTERNAL SCHMATIC DIAGRAM



Application

- Electronic Ballasts
- Adapter
- Lighting

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	4	A
Collector Current(Pulse)	ICP	8	A
Total Power Dissipation(TO126)	PD	20	W
Total Power Dissipation(TO251)		35	
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	800	—	—	V
Collector-Emitter Breakdown Voltage	BVCEO	IC = 10mA, IE=0	400	—	—	V
Emitter- Base Breakdown Voltage	BVEBO	IE = 1mA, IC=0	9	—	—	V
Collector Cutoff Current	ICBO	VCB = 700V, IE=0	—	—	110	μA
Emitter Cutoff Current	IEBO	VEB = 7V, IC=0	—	—	225	μA
DC Current Gain	hFE1	VCE = 5V, IC=500mA	30	—	—	
	hFE2	VCE = 5V, IC=1A	20	—	40	
	hFE3	VCE = 5V, IC=2A	15	—	—	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 0.5A / 0.1A	—	—	0.7	V
	VCE(SAT2)	IC/IB = 1A / 0.25A	—	—	1	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 0.5A / 0.1A	—	—	1.3	V
	VBE(SAT2)	IC/IB = 1A / 0.25A	—	—	1.5	

Resistive Load Switching Time (Ratings)

Rise Time	T _{on}	V _{cc} =250V, IC=1A, IB1 = IB2 = 0.2A, tp = 25μS Duty Cycle ≤ 1%	—	—	0.7	μS
Storage Time	t _{STG}		—	3.5	5	μS
Fall Time	t _f		—	0.2	0.6	μS

Electrical Characteristics Curve ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Figure 1. Static Characteristics

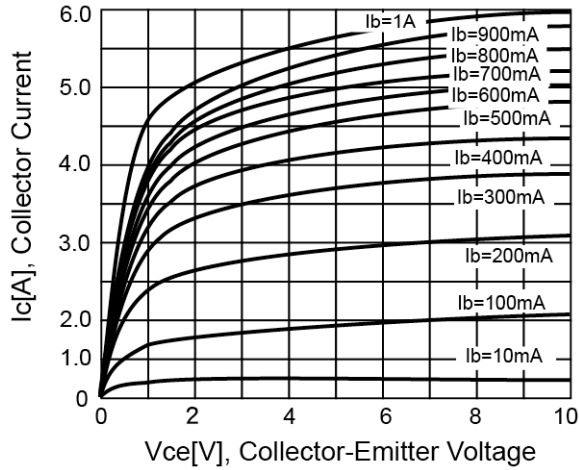


Figure 2. DC Current Gain

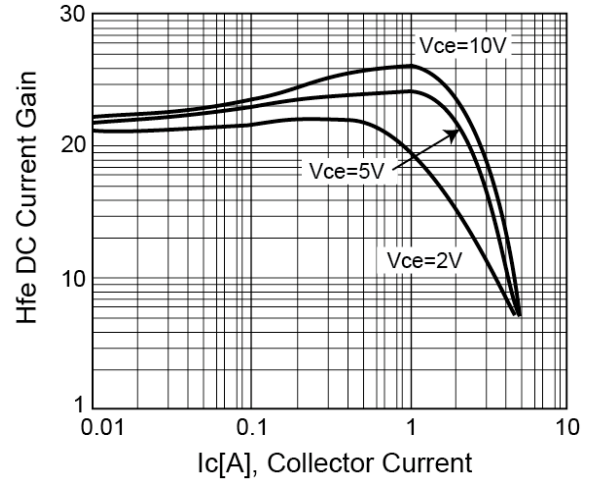


Figure 3. $V_{ce(sat)}$ v.s. $V_{be(sat)}$

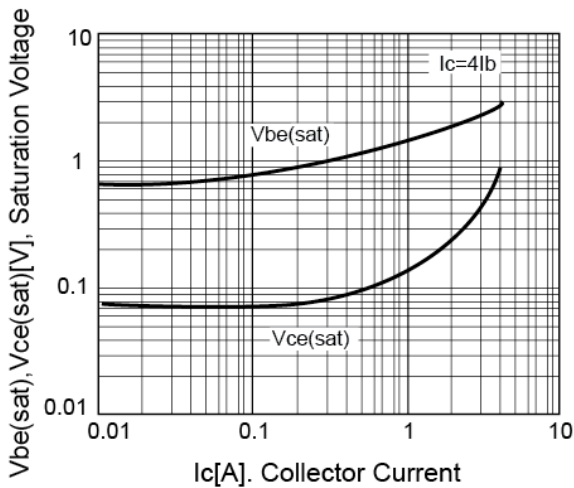


Figure 4. Power Derating

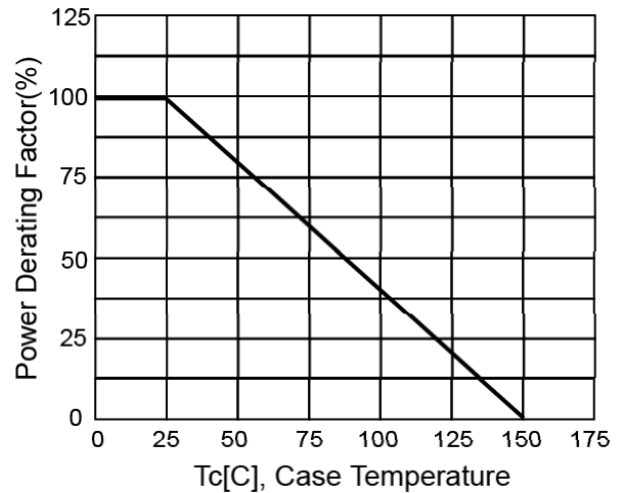


Figure 5. Reverse Bias SOA

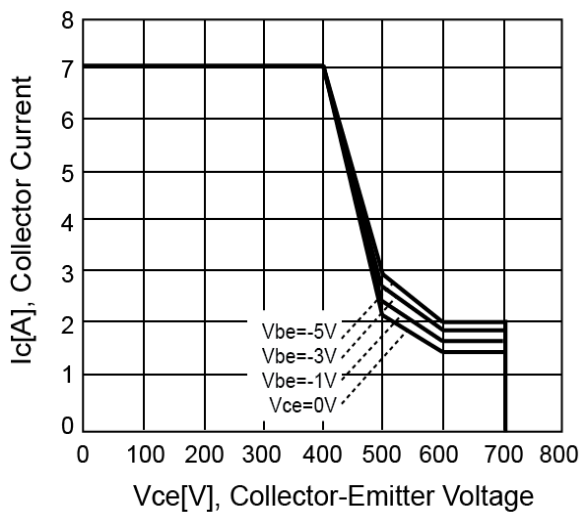
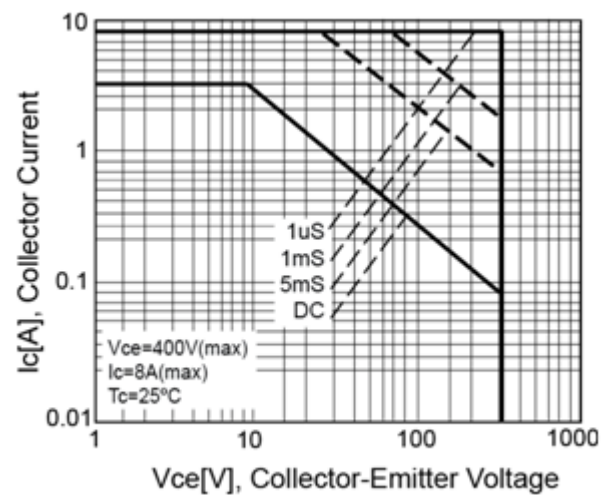


Figure 6. Safety Operating Area



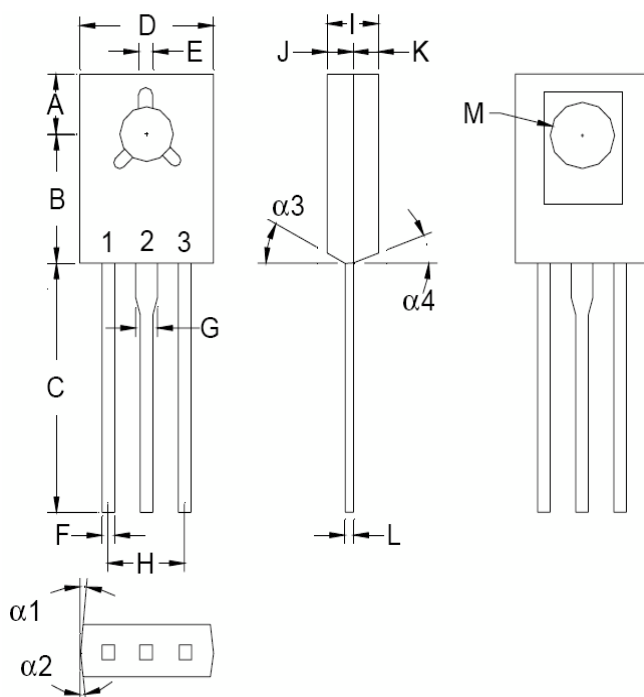
Ordering Information

Type NO	Marking	Package Code
WTBV56DM	BV56DM	TO-126
WTBV56DMR	BV56DMR	TO-126R
WTI56D	56DI	TO-251

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV56DM(R)	Product Code	
Third Line	C C 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



TO-126 DIMENSION				
	MILLIMETERS		INCHES	
DIM	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

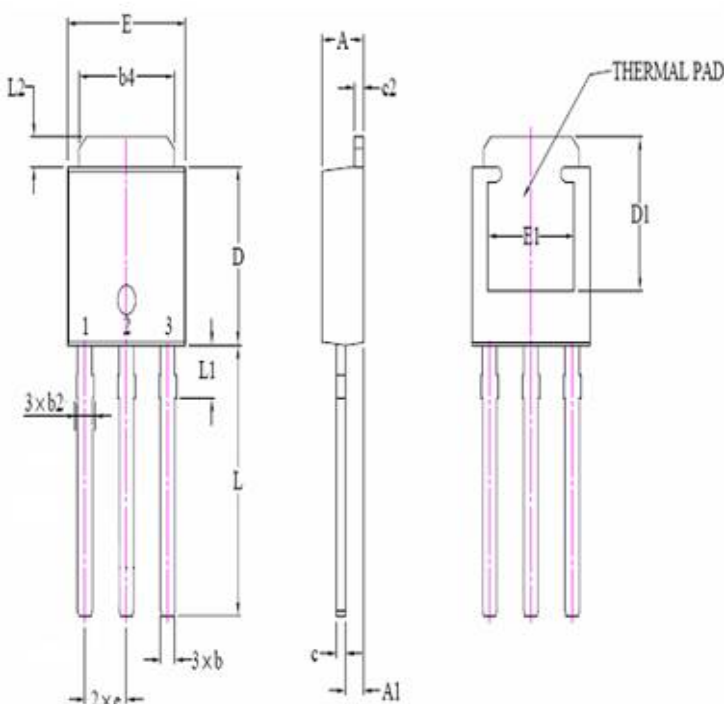
Ordering Information

Type NO	Marking	Package Code
WTI56D	56DI	TO-251

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	56DI	Product Code	
Third Line	CC0TI	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



Symbo l	TO-251DL			
	Millimeters		Inches	
	Min	Max	Min	Max
A	2.230	2.420	0.087	0.095
A1	0.890	1.140	0.035	0.045
b	0.550	0.670	0.022	0.026
b2	0.760	0.950	0.030	0.038
b4	5.200	5.400	0.205	0.213
c	0.460	0.570	0.018	0.023
c2	0.450	0.550	0.018	0.022
D	5.950	6.250	0.234	0.246
D1	4.200	4.500	0.165	0.177
E	6.400	6.700	0.252	0.264
E1	4.750	4.850	0.187	0.191
e	2.28 REF		0.090 REF	
L	8.900	9.500	0.350	0.374
L1	1.900	2.290	0.075	0.090
L2	0.900	1.000	0.035	0.039