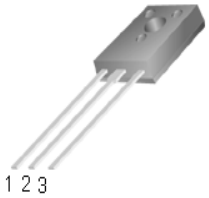
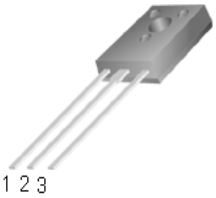
WTBV56DM (R) / WTI56D
POWER TRANSISTOR

High Voltage NPN Transistor



TO-126

Pin Definition
1. Emitter
2. Collector
3. Base



TO-126 R

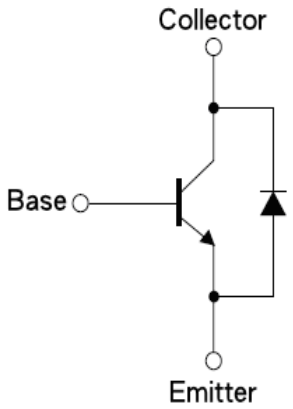
Pin Definition
1. Base
2. Collector
3. Emitter

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 (Tc = 25℃)

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

ELECTRICAL CHARACTERISTICS (Tc = 25℃)

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}	Vcc=250V, IC=1A, IB1 = IB2 = 0.2A, tp = 25uS Duty Cycle ≦ 1%	–	–	0.7	uS
Storage Time	t_{STG}		–	3.5	5	uS
Fall Time	t_f		–	0.2	0.6	uS

Electrical Characteristics Curve (Ta = 25°C, unless otherwise noted)

Figure 1. Static Characteristics

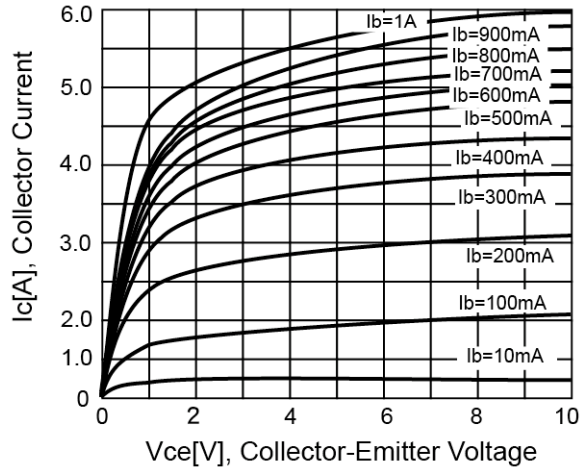


Figure 2. DC Current Gain

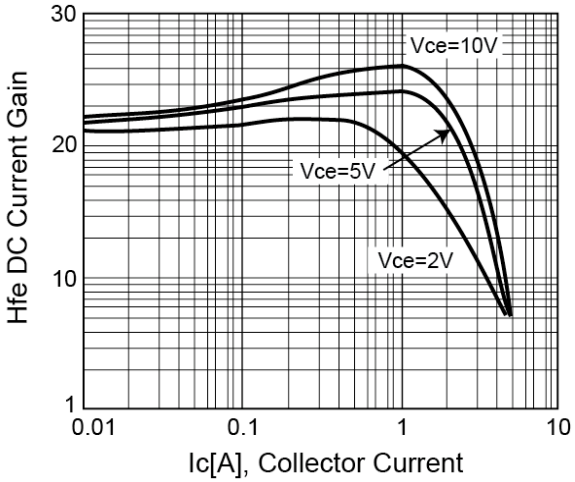


Figure 3. Vce(sat) v.s. Vbe(sat)

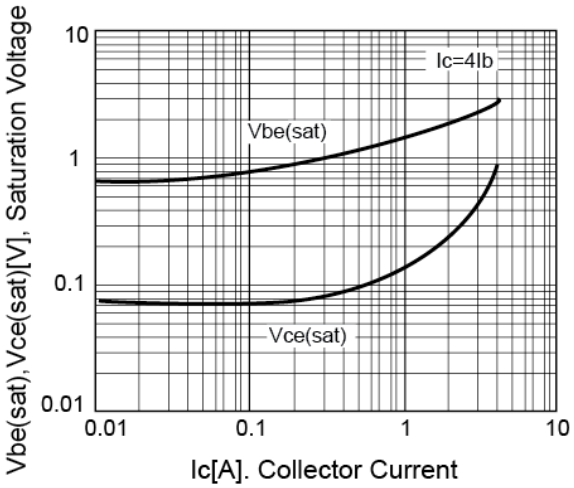


Figure 4. Power Derating

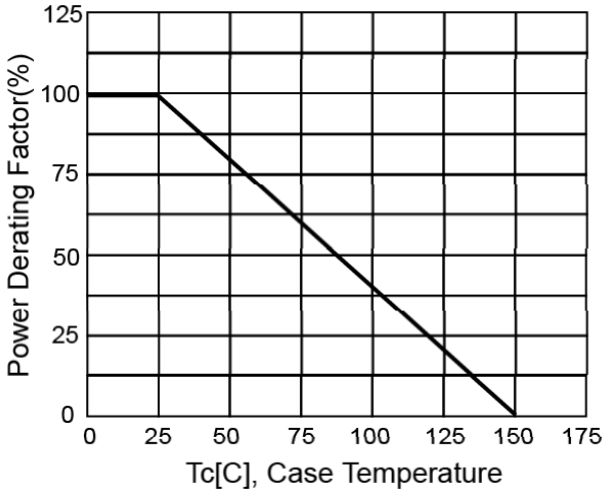


Figure 5. Reverse Bias SOA

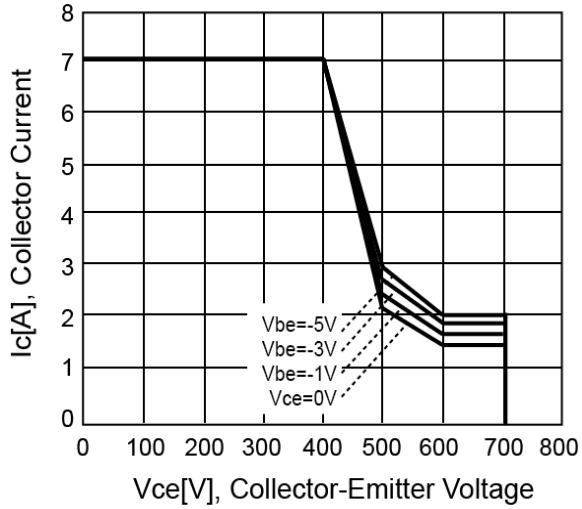
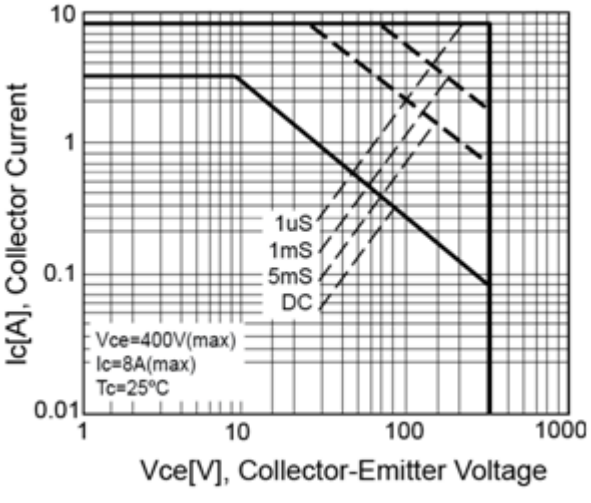


Figure 6. Safety Operating Area



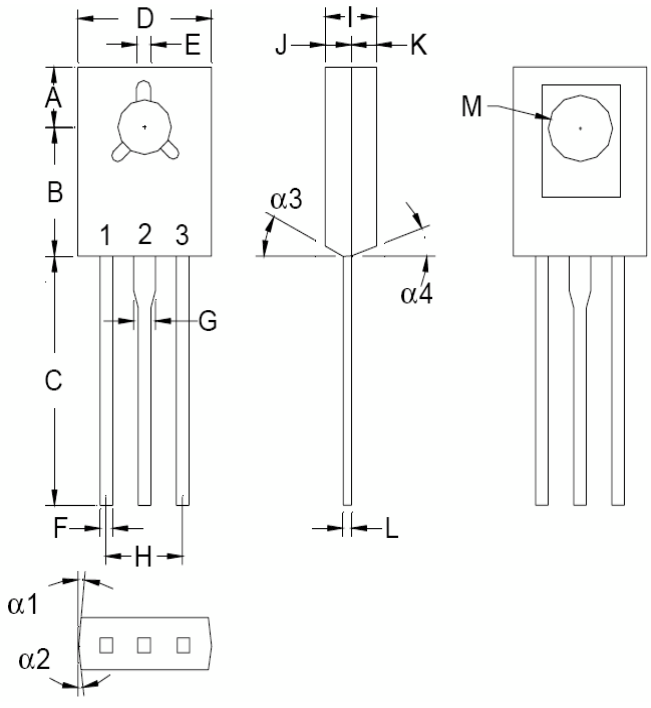
Ordering Information

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
∝1	–	3°C	–	3°C
∝2	–	3°C	–	3°C
∝3	–	3°C	–	3°C
∝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	C C 0 T I _	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
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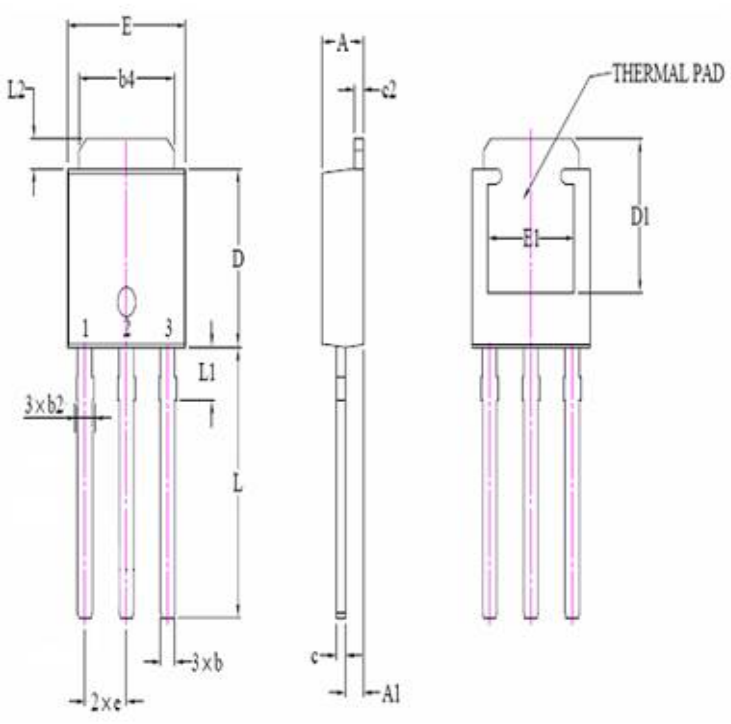
		6th (Spec Code)	(Reserve)

TO-251 Package Dimension



Symbol	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	0.960	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