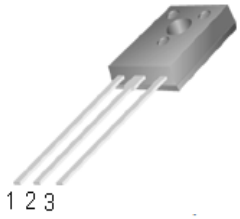
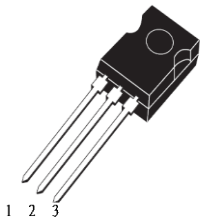
High Voltage NPN Transistor



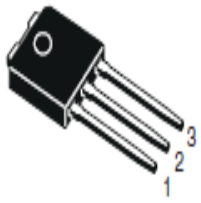
TO-126 R

Pin Definition
1. Base
2. Collector
3. Emitter



SOT-82

Pin Definition
1. Base
2. Collector
3. Emitter



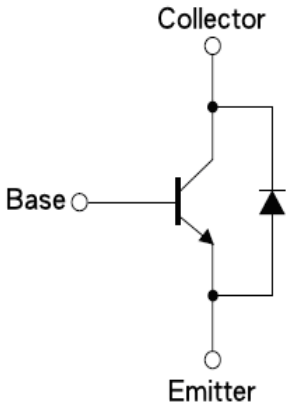
TO-251 (I-Pak)

Pin Definition
1. Base
2. Collector
3. Emitter

Features

- High Voltage
- Very High Switch Speed
- BV_{CEO} : 400V
- BV_{CBO} : 800V
- I_C : 3A
- $V_{CE(SAT)}$: max1V@I_c / I_B=1A/ 0.25A
- 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	3	A
Collector Current(Pulse)	ICP	6	A
Total Power Dissipation(TO126)	PD	20	W
Total Power Dissipation(TO251)		30	
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	–	–	1	μA
Emitter Cutoff Current	IEBO	VEB = 9V, IC=0	–	–	1	μA
DC Current Gain	hFE1	VCE = 5V, IC=500mA	25	–	–	
	hFE2	VCE = 5V, IC=1A	15	–	30	
	hFE3	VCE = 5V, IC=2A	5	–	–	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 0.5A / 0.1A	–	–	0.5	V
	VCE(SAT2)	IC/IB = 1A / 0.25A	–	–	1	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 1A / 0.25A	–	–	1.2	V
	VBE(SAT2)	IC/IB = 2A / 0.5A	–	–	1.5	

Resistive Load Switching Time (Ratings)

Rise Time	t_r	Vcc=250V, IC=1A, IB1 = IB2 = 0.2A, tp = 25uS Duty Cycle ≦ 1%	–	–	0.8	uS
Storage Time	t_{STG}		–	3	6	uS
Fall Time	t_f		–	0.2	0.7	uS

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

Figure 1. Static Characteristics

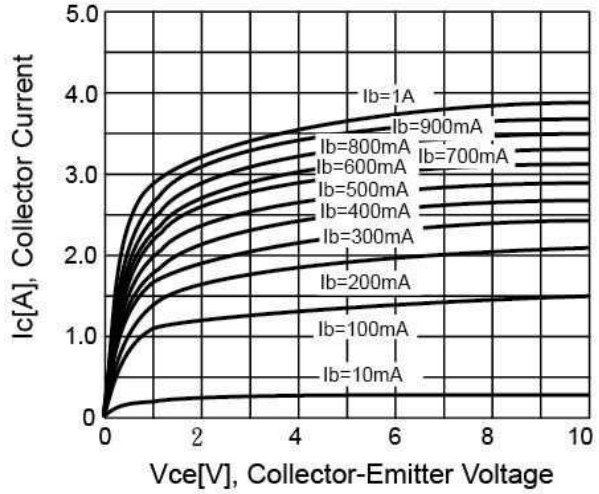


Figure 2. DC Current Gain

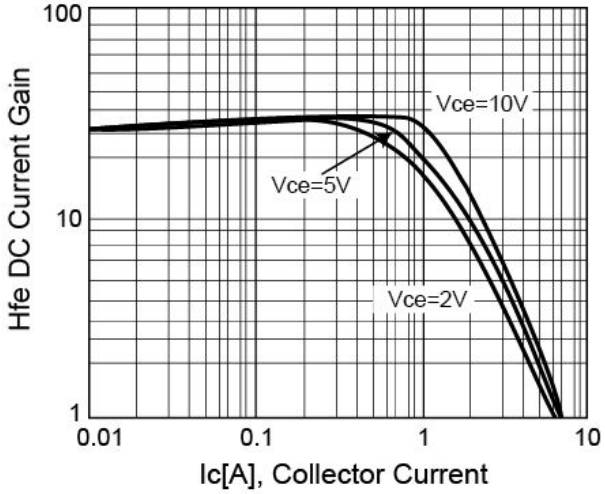


Figure 3. Vce(sat) v.s. Vbe(sat)

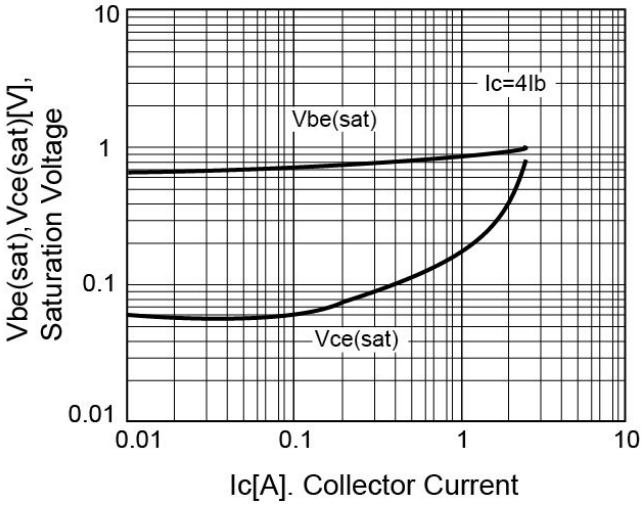


Figure 4. Power Derating

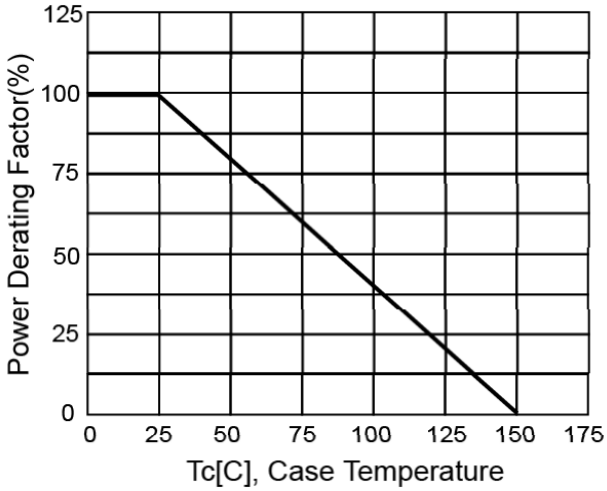


Figure 5. Reverse Bias SOA

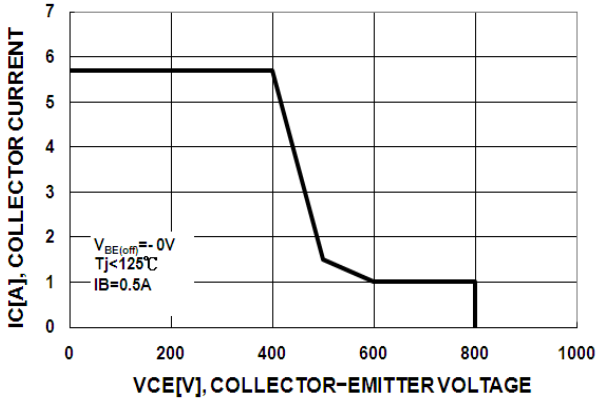
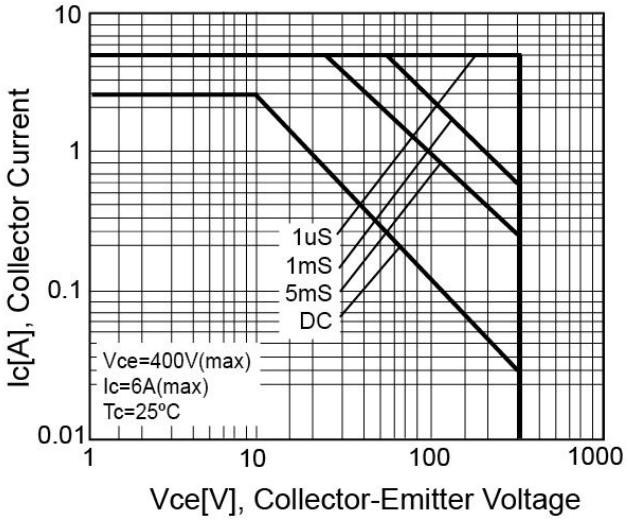


Figure 6. Safety Operating Area



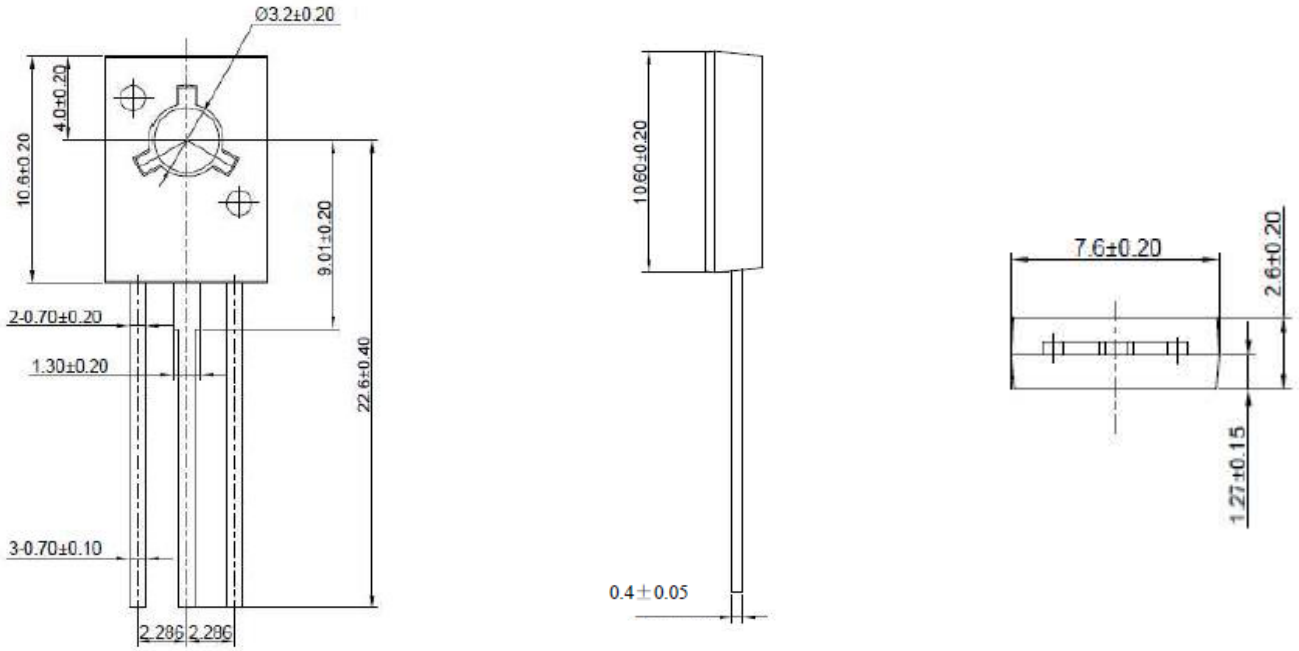
Ordering Information

Type NO	Marking	Package Code
WTBV53DMR	BV53DMR	TO-126R

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV53DMR	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 N – SOT82
		6th (Spec Code)	(Reserve)

TO-126 Package Dimension



Unit : mm

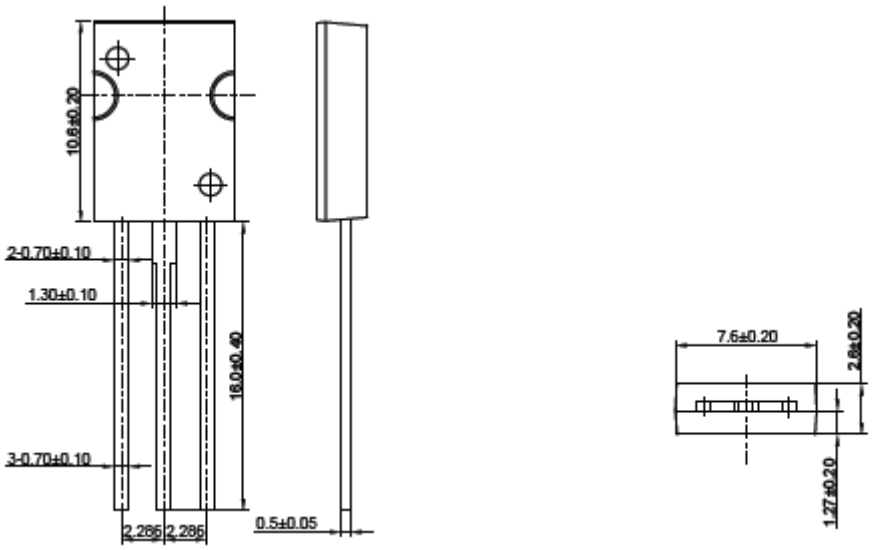
Ordering Information

Type NO	Marking	Package Code
WTBV53DNR	BV53DNR	SOT-82

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV53DNR	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 N - SOT82
		6th (Spec Code)	(Reserve)

SOT-82 Package Dimension



Unit : mm

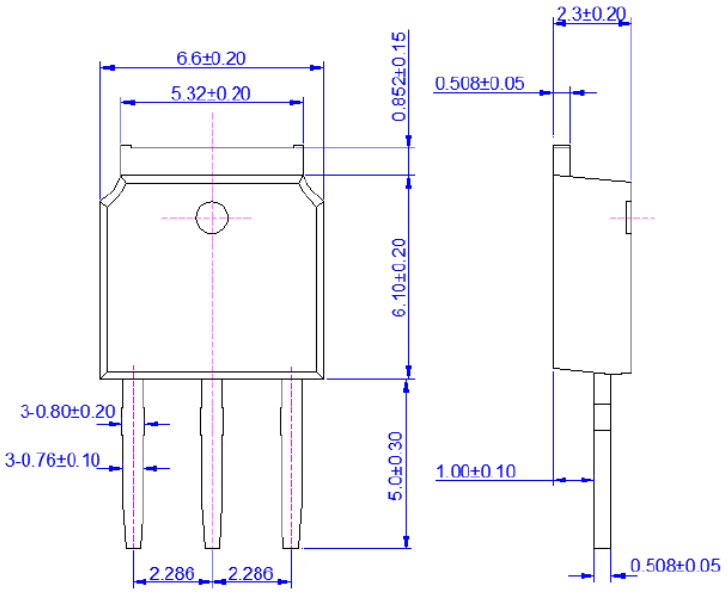
Ordering Information

Type NO	Marking	Package Code
WTI53D	53DI	TO-251

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	53DI	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
		5th (Package Code)	I - TO251, D - TO252 , L - TO92, M - TO126, X - TO220, F - TO220F, Y - SOT89, S - SOP8 N - SOT82
		6th (Spec Code)	(Reserve)

TO-251 Package Dimension



Unit : mm