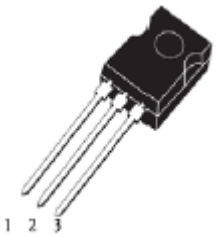
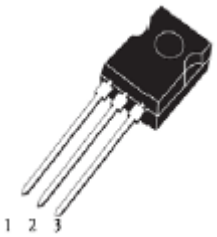
WTBV55DN (R) / WTI55D
POWER TRANSISTOR

High Voltage NPN Transistor



SOT-82

Pin Definition
1. Emitter
2. Collector
3. Base



SOT-82R

Pin Definition
1. Base
2. Collector
3. Emitter

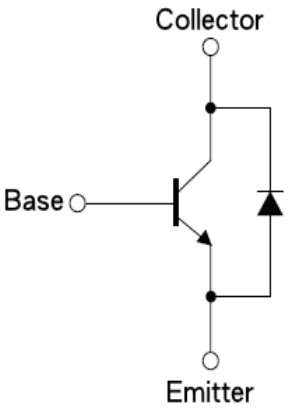
TO-251(I-Pak)

Pin Definition
1. Base
2. Collector
3. Emitter

Features

- High Voltage
- Very High Switch Speed
- BV_{CEO} : 400V
- BV_{CBO} : 800V
- I_C : 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
Collector-Emitter Voltage (V_{BE} = 0)	VCES	800	V
Emitter-Base Voltage	VEBO	9	V
Collector Current(DC)	IC	4	A
Collector Current(Pulse)	ICP	8	A
Total Power Dissipation(SOT82(R))	PD	30	W
Total Power Dissipation(TO251)		40	
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
Collector-Emitter Situation Voltage	VCE(sus)*	IC =10mA, IB=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	20	-	-	
	hFE2	VCE = 5V, IC=1.0A	20	-	40	
	hFE3	VCE = 5V, IC=2.0A	4	-	-	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 1.5A / 0.5A	-	-	1.3	V
	VCE(SAT2)	IC/IB = 3.0A / 1.0A	-	-	1.5	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 1.0A / 0.25A	-	-	1.3	V
	VBE(SAT2)	IC/IB = 2.0A / 0.5A	-	-	1.5	

Note * : Pulse test pulse duration = 300μs, duty cycle ≤ 2%.

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

Thermal Performance

Parameter	Symbol	Limit	Unit
unction to Case Thermal Resistance (SOT82)	Rth(J-C)	4.16	℃/W
Junction to Case Thermal Resistance (TO251)	Rth(J-C)	3.12	℃/W

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

Figure 1. Static Characteristics

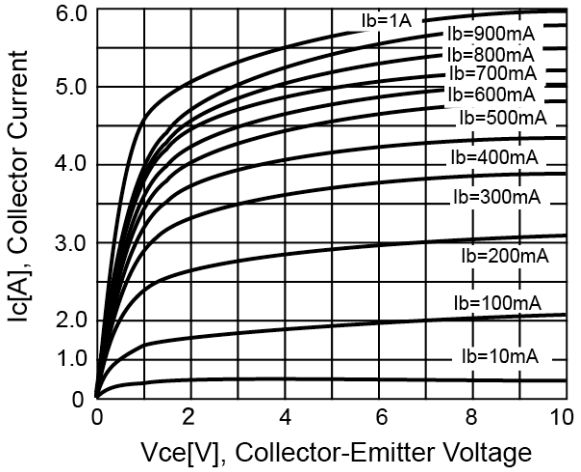


Figure 2. DC Current Gain

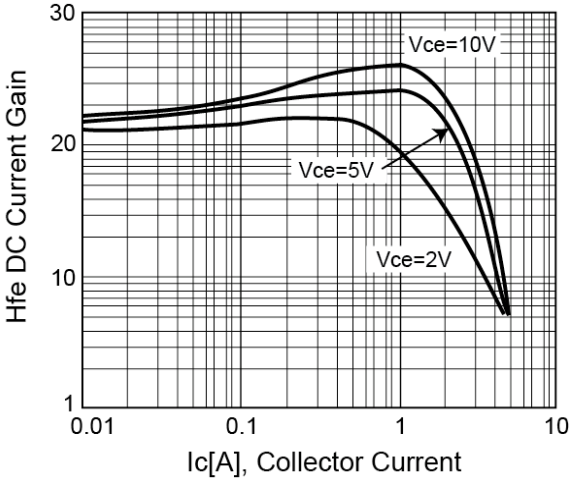


Figure 3. Vce(sat) v.s. Vbe(sat)

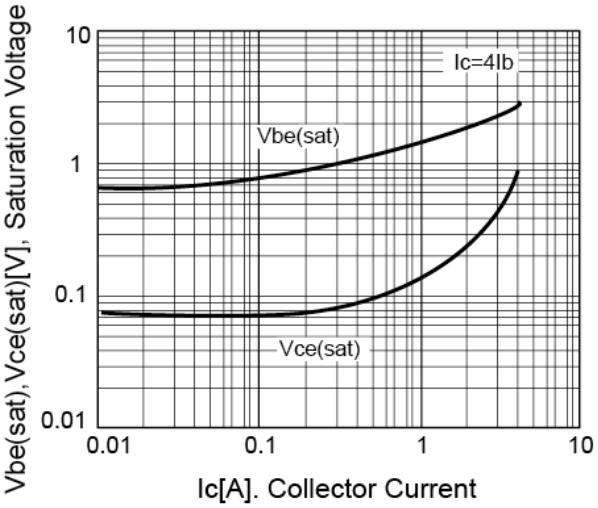


Figure 4. Power Derating

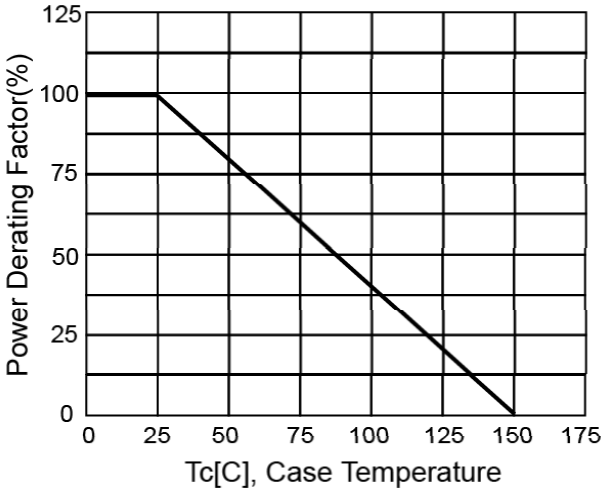


Figure 5. Reverse Bias SOA

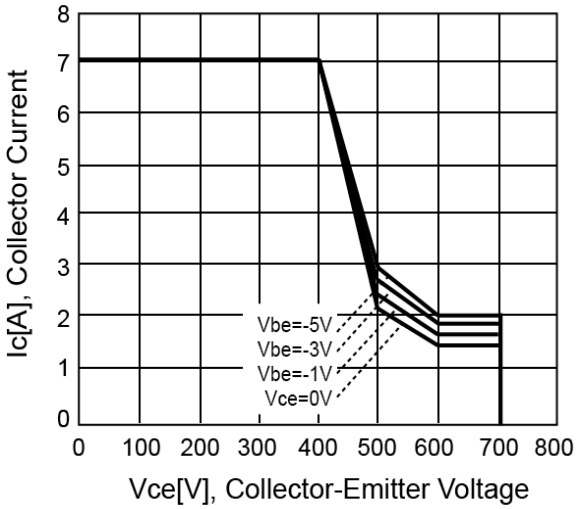
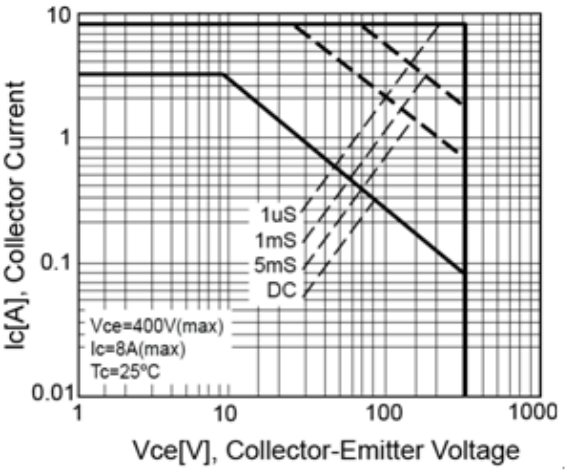


Figure 6. Safety Operating Area



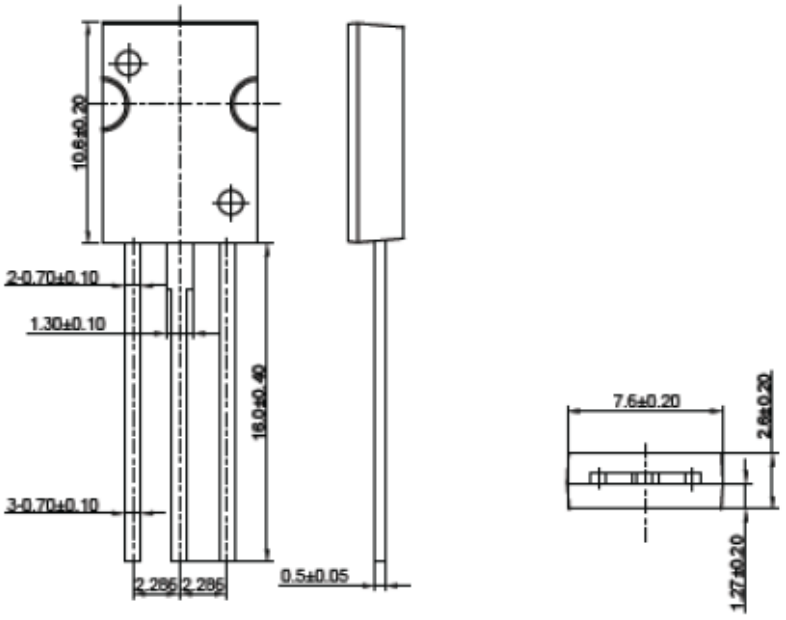
Ordering Information

Type NO	Marking	Package Code
WTBV55DN	BV55DN	SOT-82
WTBV55DNR	BV55DNR	SOT-82R

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	BV55DN(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 - SOT-82
		6th (Spec Code)	(Reserve)

SOT-82 Package Dimension



Unit : mm

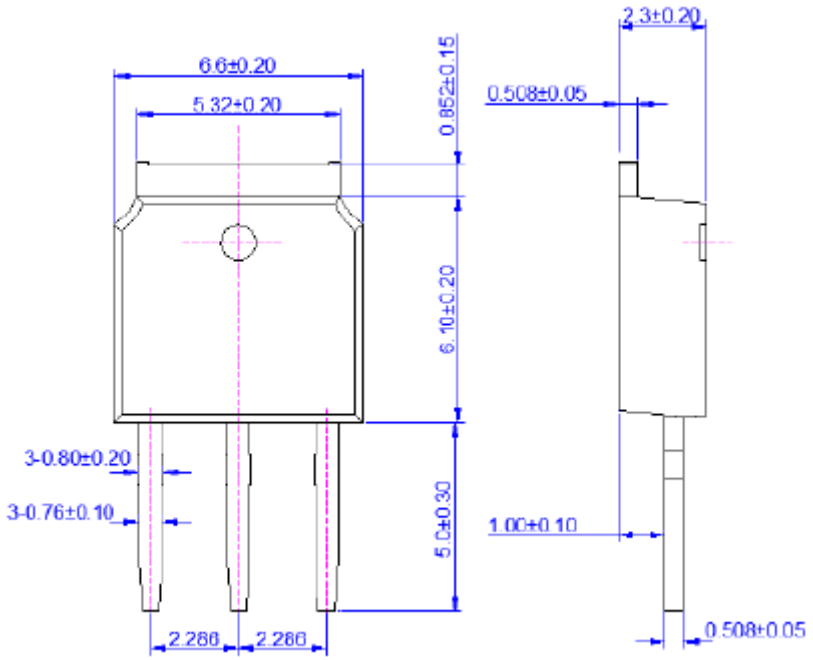
Ordering Information

Type NO	Marking	Package Code
WTI55D	55DI	TO-251

Marking and Pin Define

First Line	WTC	Company Name	
Second Line	55DI	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 - SOT-82
		6th (Spec Code)	(Reserve)

TO-251 Package Dimension



Unit : mm