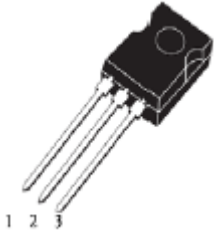


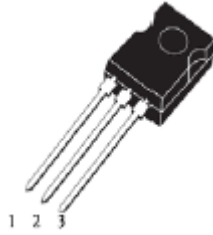
High Voltage NPN Transistor



SOT-82

Pin Definition

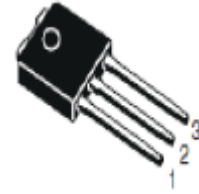
- 1. Emitter
- 2. Collector
- 3. Base



SOT-82R

Pin Definition

- 1. Base
- 2. Collector
- 3. Emitter



TO-251(I-Pak)

Pin Definition

- 1. Base
- 2. Collector
- 3. Emitter

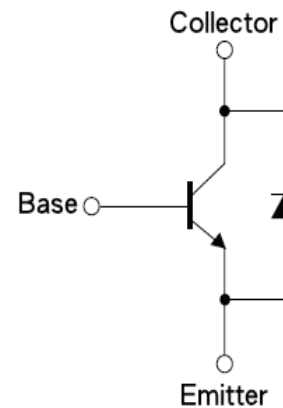
Features

- High Voltage
- Very High Switch Speed
- $V_{CE0} : 400V$
- $V_{CBO} : 800V$
- $I_c : 4A$
- Silicon Triple Diffused Type

Application

- Electronic Ballasts
- Adapter
- Lighting

INTERNAL SCHEMATIC 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
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	$^{\circ}C$
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	$^{\circ}C$

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
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}	V _{cc} =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
Junction to Case Thermal Resistance (SOT82)	R _{th} (J-C)	4.16	°C/W
Junction to Case Thermal Resistance (TO251)	R _{th} (J-C)	3.12	°C/W

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

Figure 1. Static Characteristics

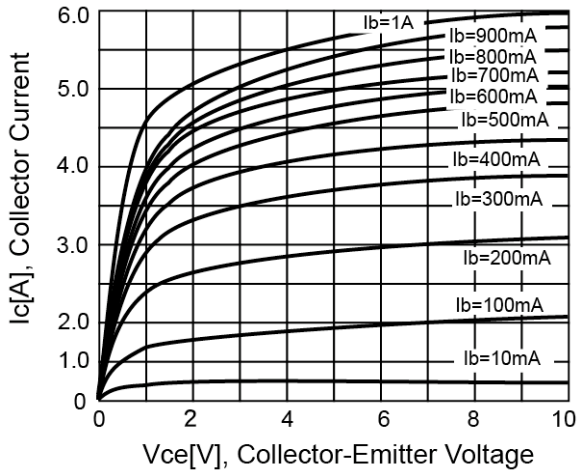


Figure 2. DC Current Gain

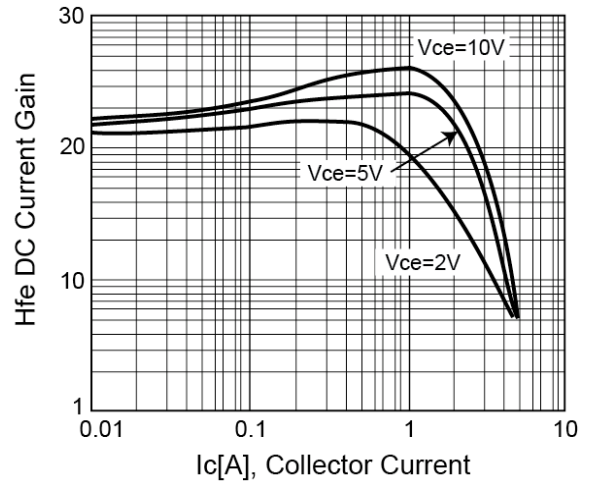


Figure 3. $V_{ce(sat)}$ v.s. $V_{be(sat)}$

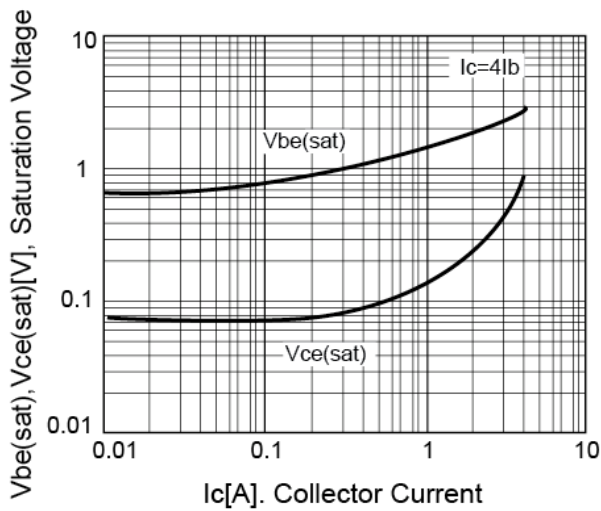


Figure 4. Power Derating

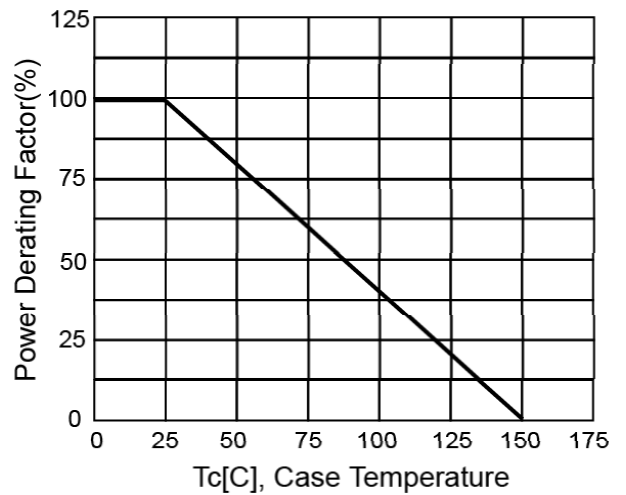


Figure 5. Reverse Bias SOA

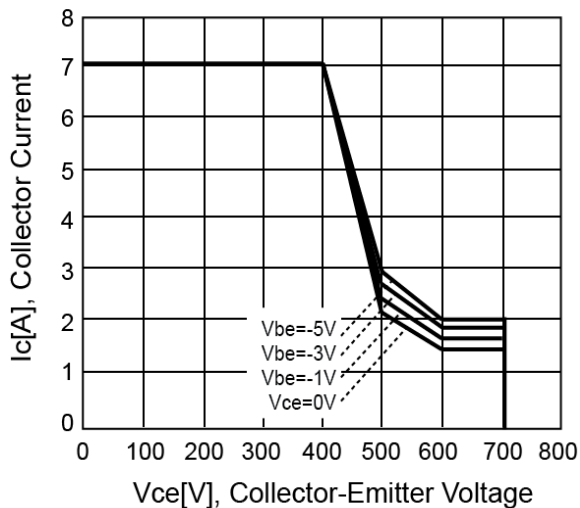
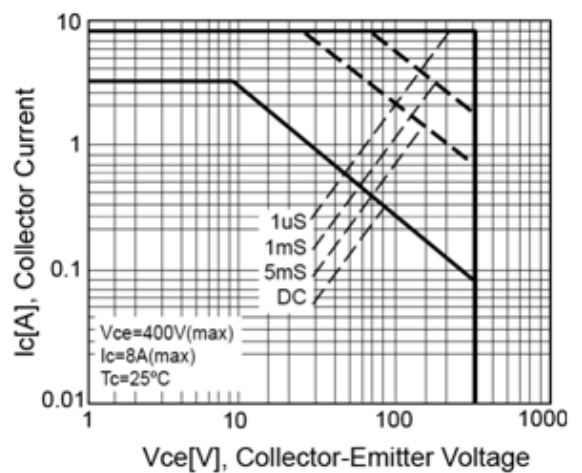


Figure 6. Safety Operating Area



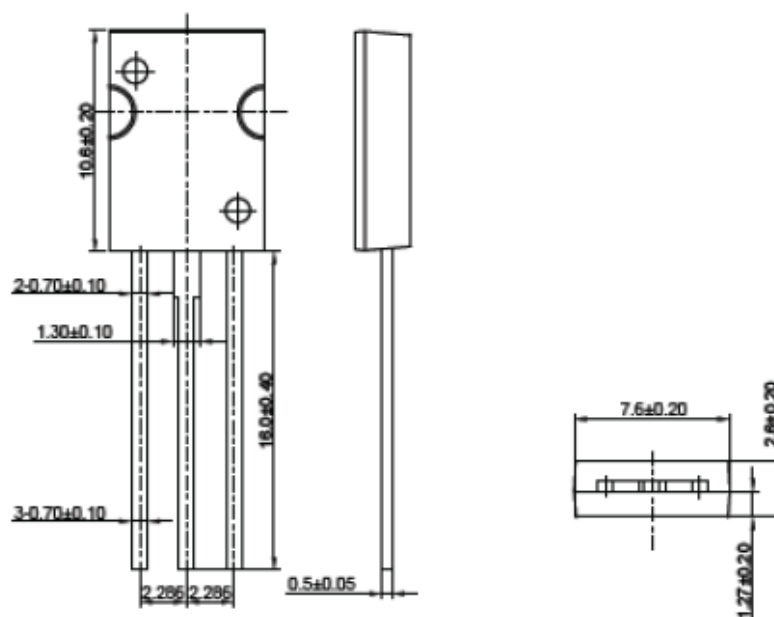
Ordering Information

Type NO	Marking	Package Code
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

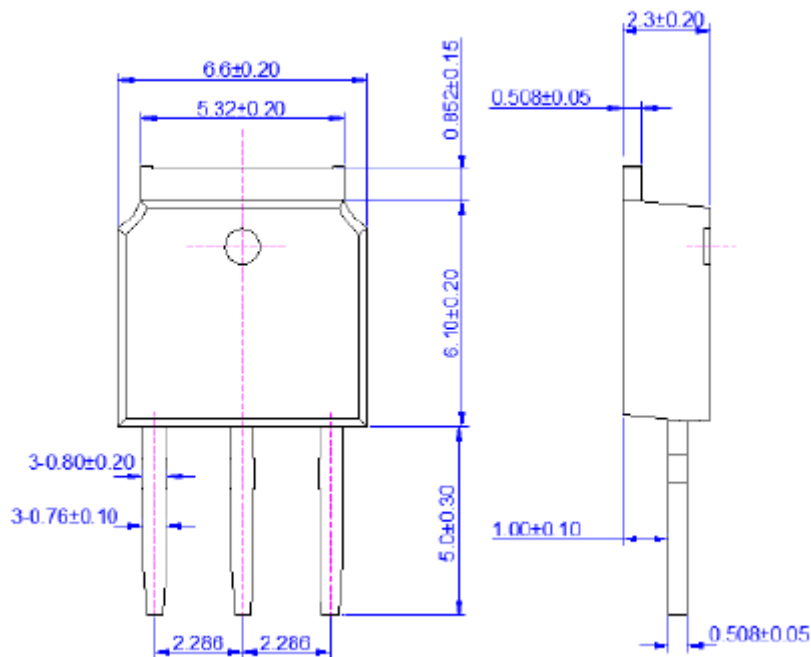
Ordering Information

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	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 - SOT-82
		6th (Spec Code)	(Reserve)

TO-251 Package Dimension



Unit : mm