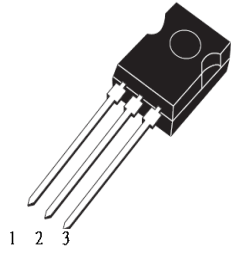
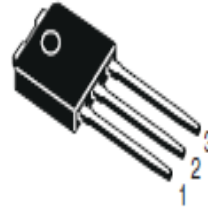


High Voltage NPN Transistor



SOT-82

Pin Definition
1. Base
2. Collector
3. Emitter



TO-251 (I-Pak)

Pin Definition
1. Base
2. Collector
3. Emitter

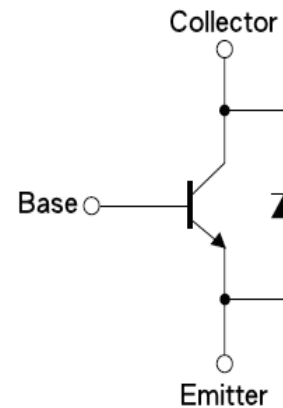
Features

- High Voltage
- Very High Switch Speed
- BV_{CEO} : 400V
- BV_{CBO} : 800V
- I_C : 5A
- Silicon Triple Diffused Type

Application

- Electronic Ballasts
- Adapter
- Lighting

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$)

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	5	A
Collector Current(Pulse)	ICP	10	A
Total Power Dissipation(TO126)	PD	30	W
Total Power Dissipation(TO251)		40	
Junction Temperature	TJ	150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	TSTG	-55 ~ +150	$^\circ\text{C}$

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	25	—	—	
	hFE2	VCE = 5V, IC=1A	23	—	40	
	hFE3	VCE = 5V, IC=2A	15	—	—	
Collector-Emitter Saturation Voltage	VCE(SAT1)	IC/IB = 2A / 0.5A	—	—	1.2	V
	VCE(SAT2)	IC/IB = 4A / 1A	—	—	1.6	
Base-Emitter Saturation Voltage	VBE(SAT1)	IC/IB = 2A / 0.5A	—	—	1.4	V
	VBE(SAT2)	IC/IB = 4A / 1A	—	—	1.8	

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

Resistive Load Switching Time (Ratings)

Rise Time	T _{on}	V _{cc} =250V, IC=500mA, 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 (SOT-82)	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

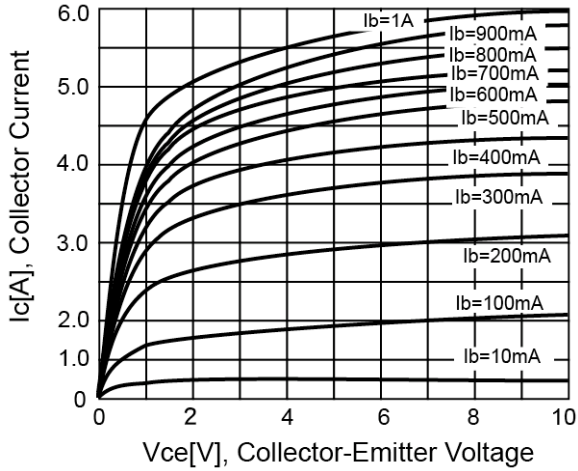


Figure 2. DC Current Gain

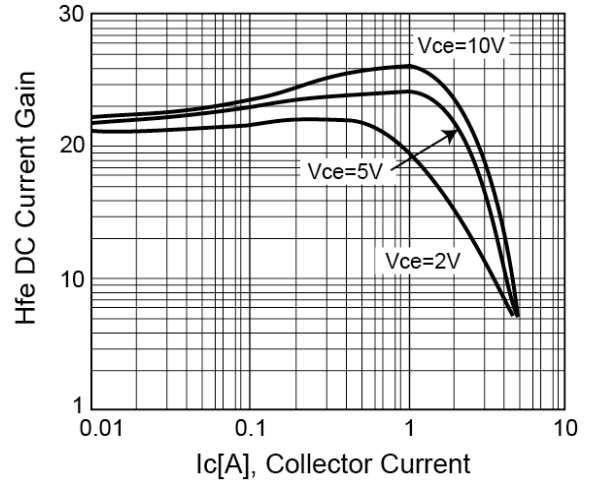


Figure 3. Vce(sat) v.s. Vbe(sat)

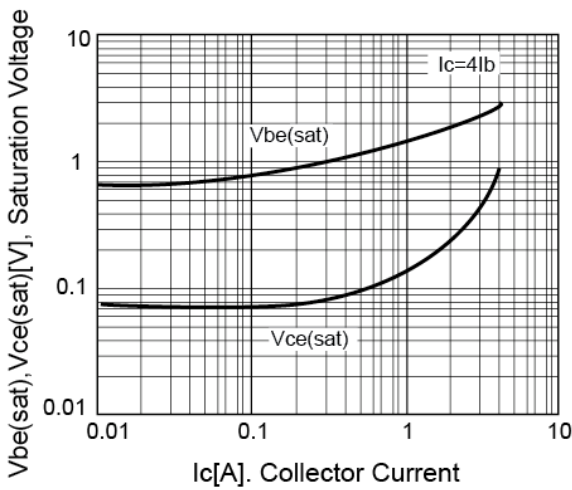


Figure 4. Power Derating

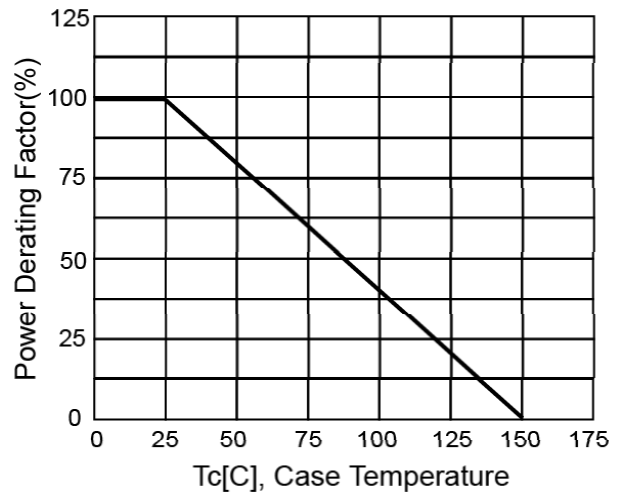


Figure 5. Reverse Bias SOA

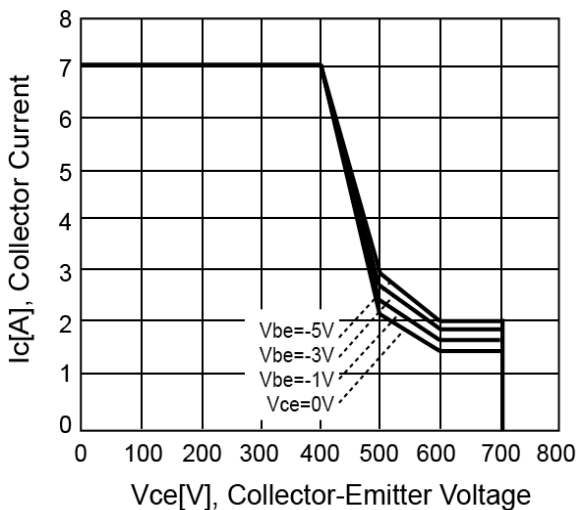
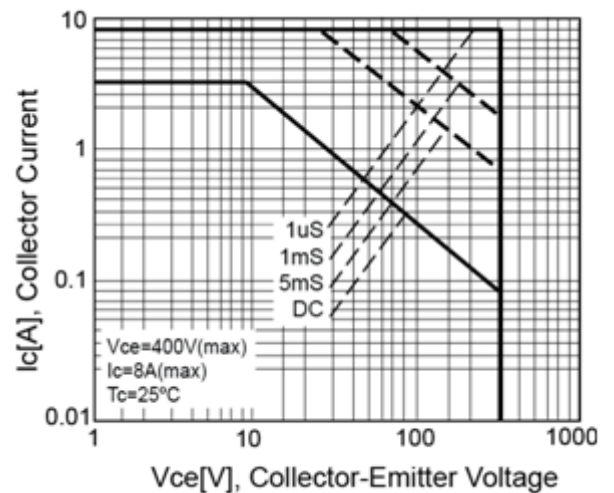


Figure 6. Safety Operating Area



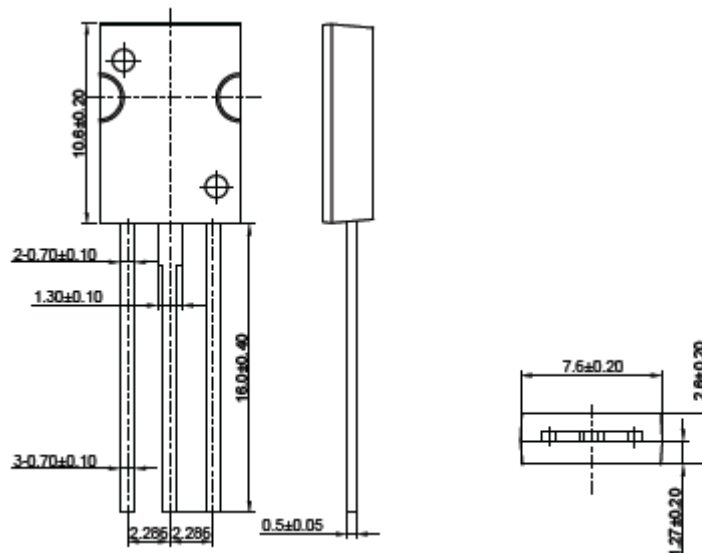
Ordering Information

Type NO	Marking	Package Code
WTBV56DNR	BV56DNR	SOT-82

Marking and Pin Define

First Line	WTC	Company Name			
Second Line	BV56DNR	Product Code			
Third Line	CC0TM	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, N - SOT82		
		6th (Spec Code)	(Reserve)		

SOT-82 Package Dimension



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

