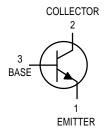
One Watt High Voltage Transistor NPN Silicon



MAXIMUM RATINGS

Rating	Symbol	Value	Unit		
Collector-Emitter Voltage	VCEO	300	Vdc		
Collector-Base Voltage	VCBO	300	Vdc		
Emitter-Base Voltage	V _{EBO}	5.0	Vdc		
Collector Current — Continuous	IC	500	mAdc		
Total Device Dissipation @ T _A = 25°C Derate above 25°C	PD	1.0 8.0	Watts mW/°C		
Total Device Dissipation @ T _C = 25°C Derate above 25°C	PD	2.5 50	Watts mW/°C		
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C		

Jue Unit 1 2 3 3 00 Vdc

BDC05



THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit	
OFF CHARACTERISTICS	OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (IC = 1.0 mAdc, IB = 0)	V(BR)CEO	300	_	Vdc	
Collector-Base Breakdown Voltage (I _C = 100 μAdc, I _E = 0)	V(BR)CBO	300	_	Vdc	
Emitter–Base Breakdown Voltage ($I_E = 100 \mu Adc$, $I_C = 0$)	V(BR)EBO	5.0	_	Vdc	
Collector Cutoff Current (V _{CB} = 200 Vdc, I _E = 0)	ІСВО	_	0.01	μAdc	
Emitter Cutoff Current (VEB = 5.0 Vdc, IC = 0)	IEBO	_	10	μAdc	

^{1.} Pulse Test: Pulse Width \leq 300 $\mu s;$ Duty Cycle \leq 2.0%.



BDC05

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
DC Current Gain (IC = 25 mAdc, VCE = 20 Vdc)	hFE	40	_	_
Collector–Emitter Saturation Voltage(1) (I _C = 20 mAdc, I _B = 2.0 mAdc)	VCE(sat)	_	2.0	Vdc
Base–Emitter Saturation Voltage (I _C = 20 mAdc, I _B = 2.0 mAdc)	V _{BE} (sat)	_	2.0	Vdc
DYNAMIC CHARACTERISTICS				
Current Gain — Bandwidth Product f _T (I _C = 10 mAdc, V _{CE} = 10 Vdc, f = 20 MHz)		60	_	MHz
Collector–Base Capacitance (V _{CB} = 30 Vdc, I _E = 0, f = 1.0 MHz)	C _{re}	_	2.8	pF

^{1.} Pulse Test: Pulse Width \leq 300 $\mu s;$ Duty Cycle \leq 2.0%.

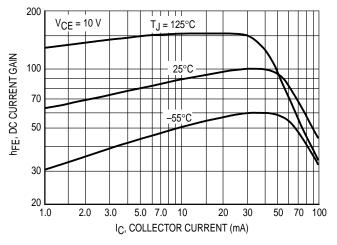


Figure 1. DC Current Gain

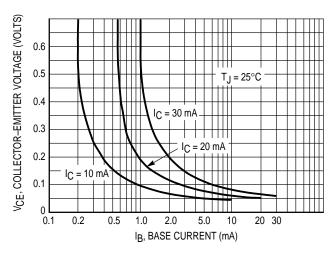


Figure 2. Collector Saturation Region

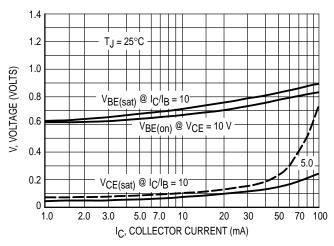


Figure 3. "On" Voltages

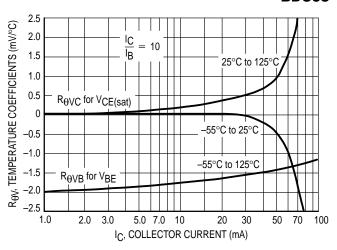


Figure 4. Temperature Coefficients

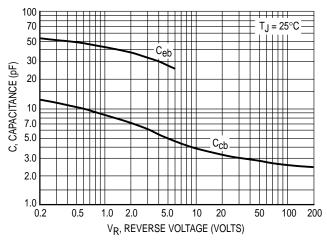


Figure 5. Capacitance

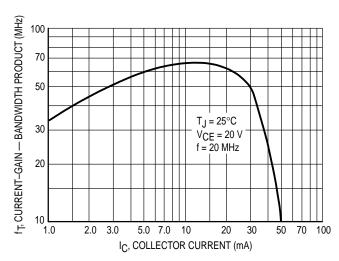


Figure 6. Current-Gain — Bandwidth Product

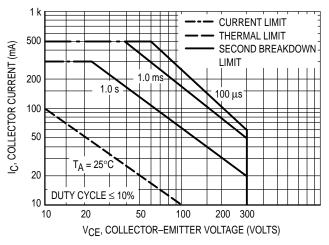
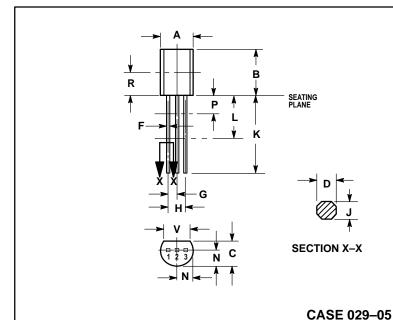


Figure 7. Active Region — Safe Operating Area

PACKAGE DIMENSIONS

(TO-226AE) ISSUE AD



NOTES:

- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: INCH.
- CONTOUR OF PACKAGE BEYOND DIMENSION R
 IS UNCONTROLLED.
- DIMENSION F APPLIES BETWEEN P AND L.
 DIMENSIONS D AND J APPLY BETWEEN L AND K
 MIMIMUM. LEAD DIMENSION IS UNCONTROLLED
 IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.175	0.205	4.44	5.21
В	0.290	0.310	7.37	7.87
С	0.125	0.165	3.18	4.19
D	0.018	0.022	0.46	0.56
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
Н	0.095	0.105	2.42	2.66
7	0.018	0.024	0.46	0.61
K	0.500		12.70	
L	0.250		6.35	
N	0.080	0.105	2.04	2.66
Р		0.100		2.54
R	0.135		3.43	
٧	0.135		3.43	

STYLF 14

PIN 1. EMITTER 2. COLLECTOR

3. BASE

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