Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CES}	700	V
Collector-Emitter Voltage	V_{CEO}	450	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current	I_C	4	A
Peak Collector Current	I_{CM}	8	A
Base Current	I_B	2	A
Peak Base Current	I_{BM}	4	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

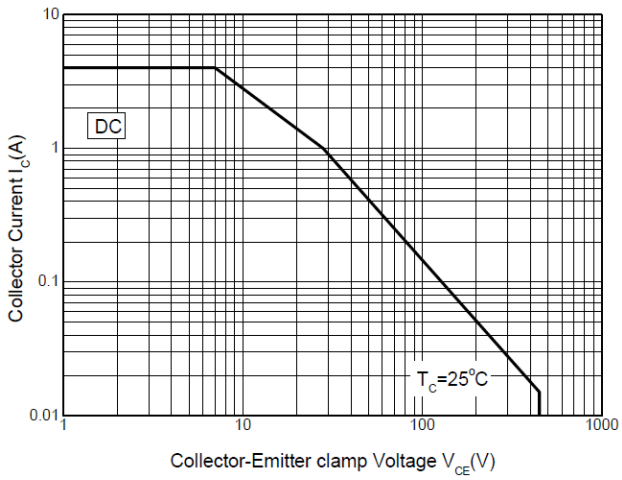
Characteristic		Symbol	Value	Unit
Power Dissipation @T_C = +25°C	For TO220F-3	P_D	28	W
	For TO220AB Type C		75	
Thermal Resistance, Junction to Case	For TO220F-3	$R_{\theta JC}$	4.5	°C/W
	For TO220AB Type C		1.67	
Operating and Storage Temperature Range		T_J,T_{STG}	-65 to +150	°C

ESD Ratings (Note 6)

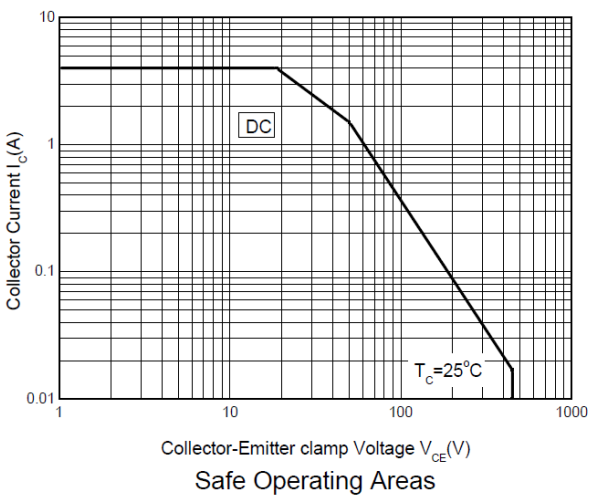
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

Note: 6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Safe Operating Areas (@T_A = +25°C, unless otherwise specified.)



Safe Operating Areas (TO-220F-3 Package)



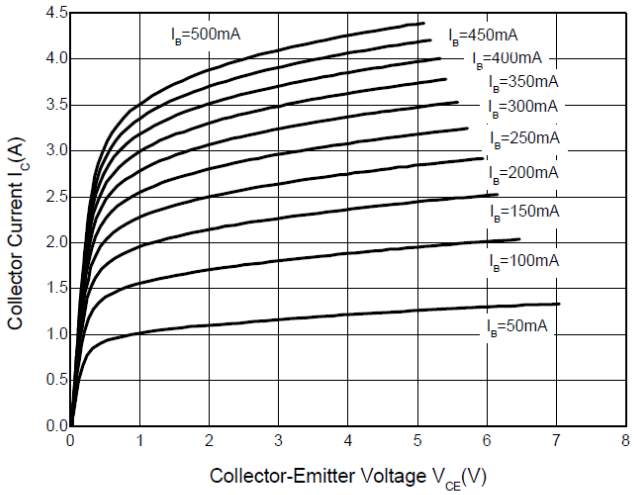
Safe Operating Areas
(TO-220-3/TO-220-3(2) Package)

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

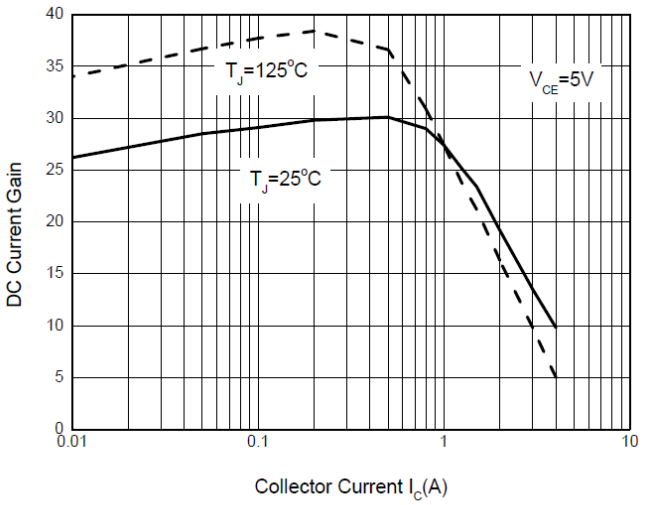
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Emitter Breakdown Voltage	BV_{CES}	700	—	—	V	I_C = 100μA, V_{BE} = 0V
Collector-Emitter Breakdown Voltage	BV_{CEO}	450	—	—	V	I_C = 100μA
Emitter-Base Breakdown Voltage	BV_{EBO}	9	—	—	V	I_E = 100μA
Collector Cutoff Current	I_{CEV}	—	—	10	μA	V_{CE} = 700V, V_{BE} = -1.5V
DC current transfer Static ratio (Note 5)	h_{FE}	15 8	—	35 35	— —	I_C = 1A, V_{CE} = 5V I_C = 2A, V_{CE} = 5V
Collector-Emitter Saturation Voltage (Note 5)	$V_{CE(sat)}$	— — —	— — —	0.3 0.6 0.9	V	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A I_C = 4A, I_B = 1A
Base-Emitter Saturation Voltage (Note 5)	$V_{BE(sat)}$	— —	— —	1.1 1.3	V	I_C = 1A, I_B = 0.2A I_C = 2A, I_B = 0.5A
Output Capacitance	C_{ob}	—	45	—	pF	V_{CB} = 10V, f = 0.1MHz
Transition Frequency	f_T	4	—	—	MHz	I_C = 0.5A, V_{CE} = 10V
Turn-on Time with Resistive Load	t_{on}	—	—	0.8	μs	I_C = 2A, V_{CC} = 125V I_{B1} = -I_{B2} = 0.4A
Storage Time with Resistive Load	t_s	—	—	4.5		
Fall Time with Resistive Load	t_f	—	—	0.9		

Note: 5. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

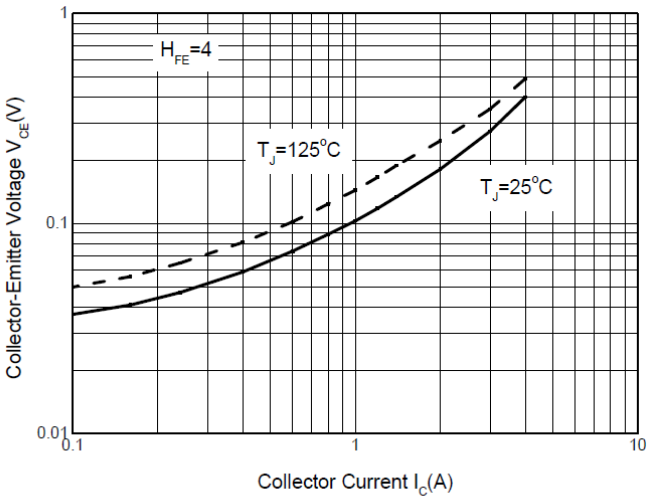
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



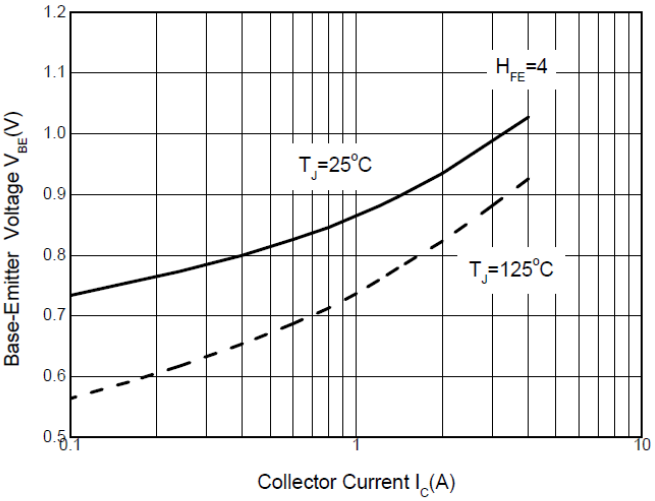
Static Characterstics



DC Current Gain



Collector-Emitter Saturation Region

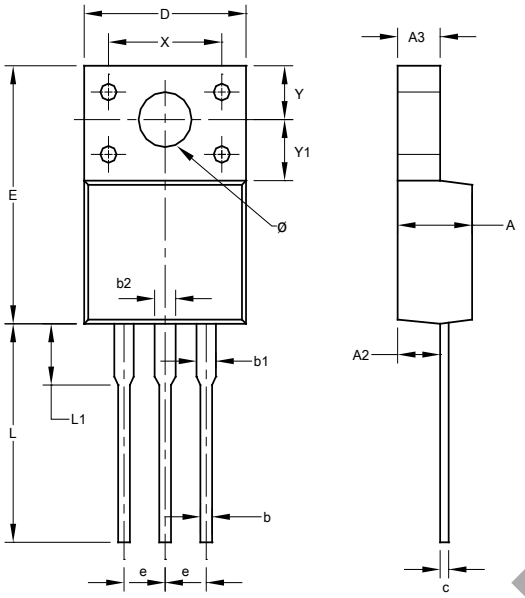


Base-Emitter Saturation Voltage

Package Outline Dimensions

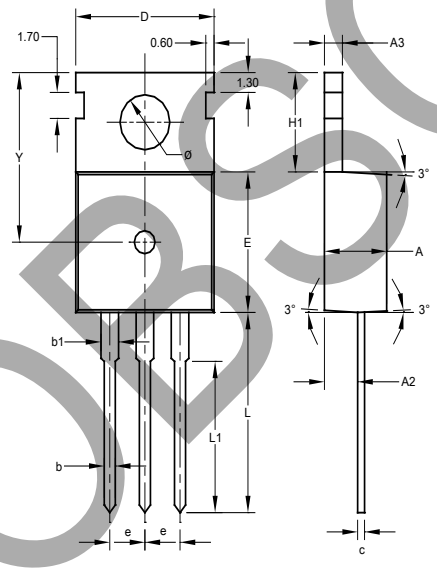
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.

TO220F-3



TO220F-3			
Dim	**Min**	**Max**	**Typ**
A	4.300	4.900	-
A2	2.520	2.920	-
A3	2.350	2.900	-
b	0.550	0.900	-
b1	1.000	1.400	-
b2	1.100	1.500	-
c	0.450	0.600	-
D	9.70	10.30	-
E	14.70	16.00	-
e	-	-	2.540
L	12.50	13.50	-
L1	2.790	4.500	-
X	6.90	7.10	-
Y	3.000	3.400	-
Y1	3.370	3.900	-
ø	3.000	3.550	-
All Dimensions in mm			

TO220AB Type C (TO220-3(2))



TO220AB Type C			
Dim	**Min**	**Max**	**Typ**
A	-	-	4.500
A2	-	-	2.400
A3	-	-	1.300
b	0.700	0.900	-
b1	-	-	1.270
c	0.400	0.600	-
D	9.800	10.200	-
E	9.000	9.400	-
e	-	-	2.54
H1	6.300	6.700	-
L	12.600	13.600	-
L1	9.600	10.600	-
Y	-	-	11.100
Ø	3.560	3.640	-
All Dimensions in mm			

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.

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