



**ELECTRICAL CHARACTERISTICS** (Per Device and  $T_C = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Sustaining Voltage (1) ( $I_C = 1 \text{ Adc}$ , $L = 40 \text{ mH}$ )	$V_{CEO(sus)}$	880	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = \text{Rated } V_{CB}$ , $I_E = 0$ )	$I_{CBO}$	—	—	4	mA
Emitter Cutoff Current ( $V_{CB} = 7 \text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	—	—	400	mA

**SAFE OPERATING AREA**

Second Breakdown Collector Current with Base Forward-Biased	FBSOA	See Figure 7			
Clamped Inductive SOA with Base Reverse-Biased	RBSOA	See Figure 8			

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 100 \text{ Adc}$ , $V_{CE} = 5 \text{ Vdc}$ )	$h_{FE}$	100	—	—	—
Collector-Emitter Saturation Voltage ( $I_C = 100 \text{ Adc}$ , $I_B = 2 \text{ Adc}$ )	$V_{CE(sat)}$	—	—	2.5	Vdc
Base-Emitter Saturation Voltage ( $I_C = 100 \text{ Adc}$ , $I_B = 2 \text{ Adc}$ )	$V_{BE(sat)}$	—	—	3.5	Vdc


**SWITCHING CHARACTERISTICS**

Resistive Load						
Turn-On Time	$V_{CC} = 600 \text{ Vdc}$ , $I_C = 100 \text{ A}$ , $I_{B1} = I_{B2} = 2 \text{ A}$ , $t_p = 50 \mu\text{s}$ , Duty Cycle $\leq 0.5\%$	$t_{on}$	—	—	2	$\mu\text{s}$
Storage Time		$t_s$	—	—	15	
Fall Time		$t_f$	—	—	5	

**C-E DIODE CHARACTERISTICS**

Forward Voltage (1) ( $I_F = 100 \text{ Adc}$ )	$V_F$	—	—	1.8	Vdc
Reverse Recovery Time ( $I_F = 100 \text{ Adc}$ , $V_{EB} = 3 \text{ V}$ , $di/dt = 100 \text{ A}/\mu\text{s}$ )	$t_{rr}$	—	—	1	$\mu\text{s}$

(1) Pulse Test: Pulse width of  $300 \mu\text{s}$ , duty cycle  $\leq 2\%$ .

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TYPICAL ELECTRICAL CHARACTERISTICS

COLLECTOR SATURATION REGION  
(PER DEVICE)

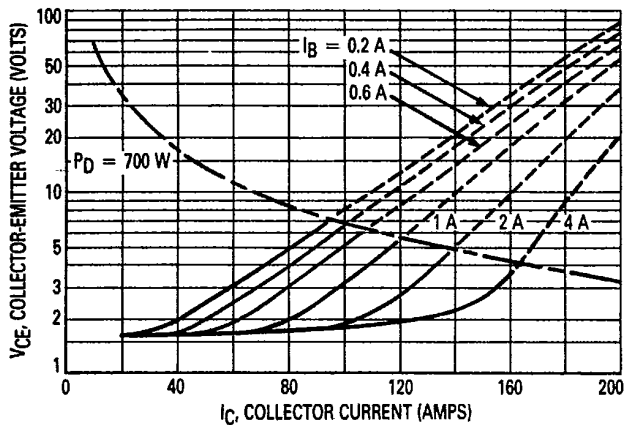


Figure 1.  $T_C = +25^\circ\text{C}$

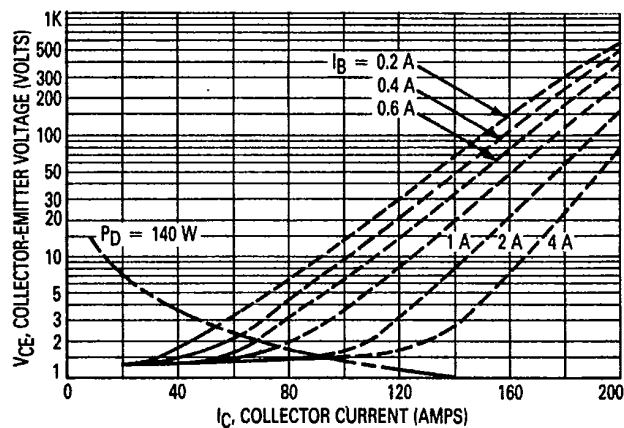


Figure 2.  $T_C = +125^\circ\text{C}$

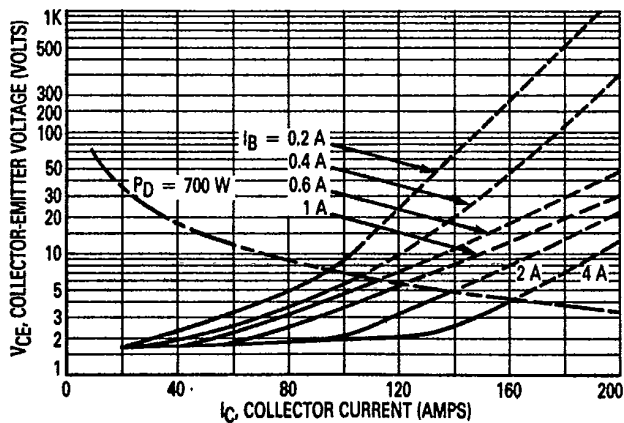


Figure 3.  $T_C = -40^\circ\text{C}$

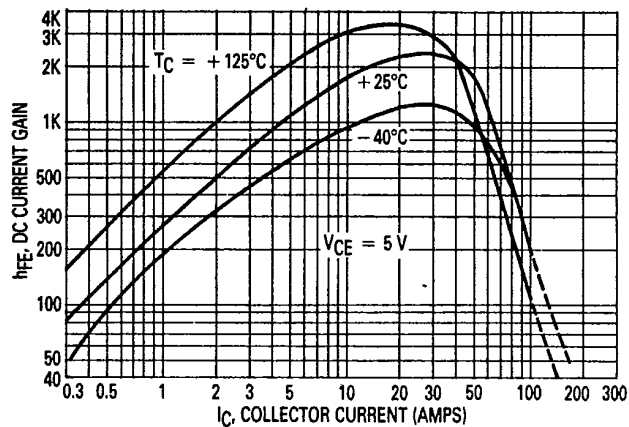


Figure 4. Typical DC Current Gain

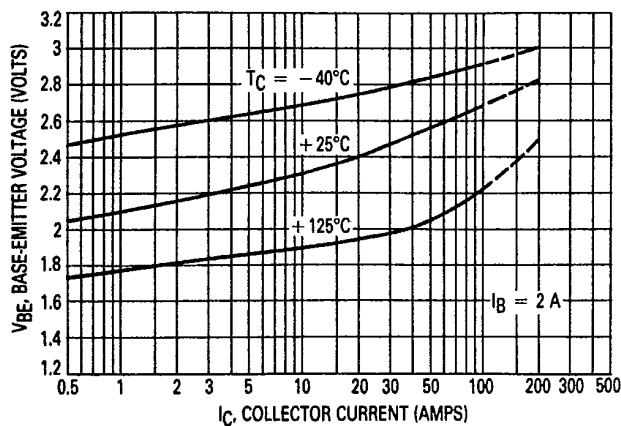


Figure 5. Typical Base-Emitter Saturation Region

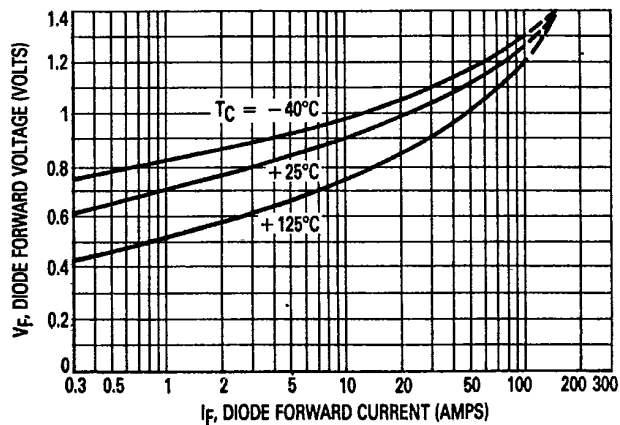
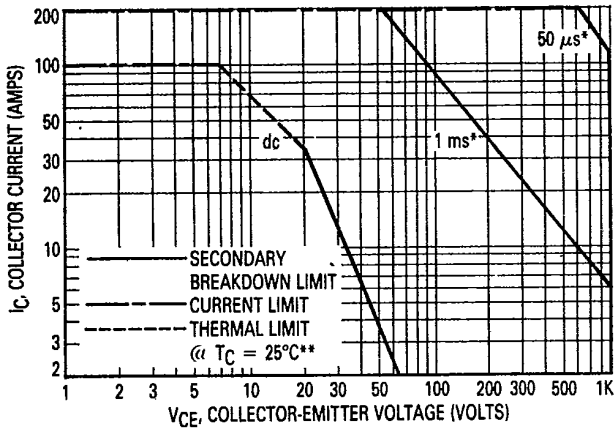


Figure 6. Typical Collector-Emitter Diode Forward Characteristics



\*Single nonrepetitive pulse  
 \*\*Curves must be derated linearly with increased temperature

Figure 7. Forward Bias Safe Operating Area

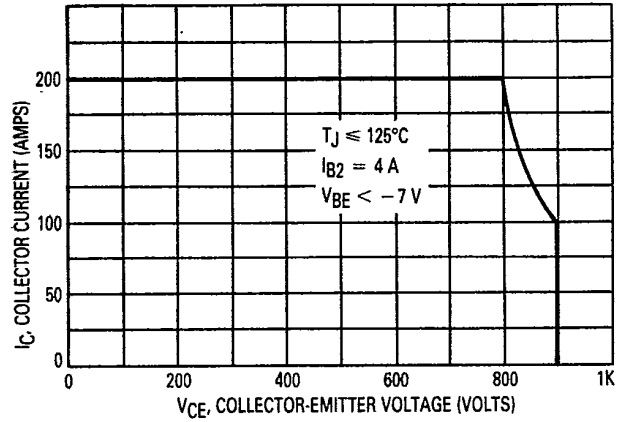


Figure 8. Reverse Bias Safe Operating Area

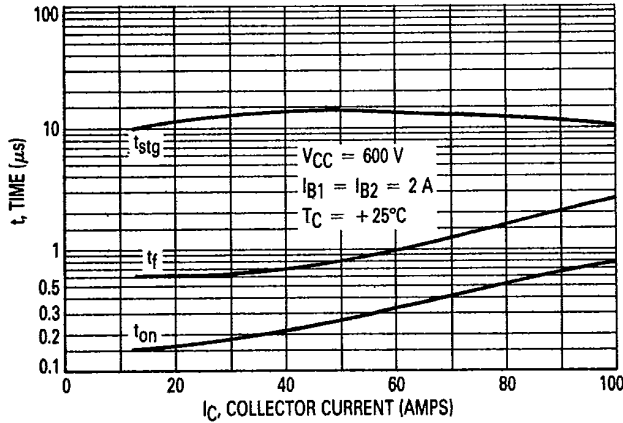


Figure 9. Typical Resistive Switching Times

### OUTLINE DIMENSIONS

**CASE 814-01**

NOTES:

1. POSITIONAL TOLERANCE FOR Q DIMENSION (4 PL):  $\pm \phi 0.36 (0.014) \text{ (X) A (B) (C)}$
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. CONTROLLING DIMENSION: MILLIMETER.
4. TERMINALS 1, 2, 3, 4, 5 AND 6 ARE FAST-ON-TAB # 110.
5. TERMINALS 7, 8, AND 9 USE M5 SCREWS.

STYLE 1:

1. BASE 2X
2. BASE 2
3. EMITTER 2
4. EMITTER 1
5. BASE 1
6. BASE 1X
7. COLLECTOR 2/EMITTER 1
8. EMITTER 2
9. COLLECTOR 1

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	107.2	108.8	4.221	4.283
B	61.2	62.8	2.410	2.472
C	22.0	25.0	0.867	0.984
D	2.5	3.5	0.099	0.137
E	24.5	25.5	0.965	1.003
F	21.0	22.0	0.827	0.866
G	93.0 BSC		3.661 BSC	
H	34.2	35.8	1.347	1.409
J	28.5	29.5	1.122	1.161
K	7.4	8.6	0.292	0.338
L	—	38.0	—	1.496
N	53.2	54.8	2.095	2.157
P	48.0 BSC		1.890 BSC	
Q	6.2	6.8	0.244	0.267
R	79.2	80.8	3.119	3.181
T	105.2	106.8	4.142	4.204
V	59.2	60.8	2.331	2.393
W	3.5	4.5	0.138	0.177
Y	27.5	28.5	1.083	1.122
Z	16.5	17.5	0.650	0.688
e	48.5	49.5	1.910	1.948
f	5.5	6.5	0.217	0.255

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