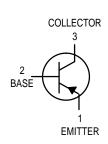
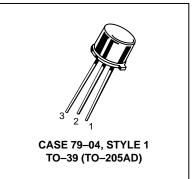
# **General Purpose Transistors**

**PNP Silicon** 



## 2N4036 2N4037



#### MAXIMUM RATINGS

Rating	Symbol	2N4036	2N4037	Unit		
Collector-Emitter Voltage	VCEO	-65	-40	Vdc		
Collector-Base Voltage	V <sub>CBO</sub>	-90	-60	Vdc		
Emitter-Base Voltage	VEBO	-7.0	-7.0	Vdc		
Base Current	ΙB	-0.5		Adc		
Collector Current — Continuous	IC	-1.0		-1.0		Adc
Continuous Power Dissipation at or Below T <sub>C</sub> = 25°C Linear Derating Factor	PD	5.0 28.6	5.0 28.6	Watts mW/°C		
Continuous Power Dissipation at or Below T <sub>A</sub> = 25°C Linear Derating Factor	PD	1.0 5.72	1.0 5.72	Watts mW/°C		
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +200		°C		
Lead Temperature 1/16" from Case for 10 Seconds	т∟	23	30	°C		

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	2N4036	2N4037	Unit
Thermal Resistance, Junction to Case	$R_{ hetaJC}$	35	35	°C/W

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

Characteristic		Symbol	Min	Max	Unit		
OFF CHARACTERISTICS							
Collector-Emitter Sustaining Voltage <sup>(1)</sup> ( $I_C = -100$ mAdc, $I_B = 0$ )	2N4036 2N4037	V <sub>CEO(sus)</sub>	-65 -40		Vdc		
Collector-Base Breakdown Voltage (I <sub>C</sub> = -0.1 mAdc)	2N4037	V(BR)CBO	-60	-	Vdc		
Collector Cutoff Current (V <sub>CE</sub> = $-85$ Vdc, V <sub>EB</sub> = $-1.5$ Vdc) (V <sub>CE</sub> = $-30$ Vdc, V <sub>EB</sub> = $-1.5$ Vdc, T <sub>C</sub> = $150^{\circ}$ C)	2N4036 2N4037	ICEX		-0.1 -100	mAdc		
Collector Cutoff Current $(V_{CB} = -90 \text{ Vdc}, I_E = 0)$ $(V_{CB} = -60 \text{ Vdc}, I_E = 0)$	2N4036 2N4037	ICBO		-1.0 -0.25	μAdc		
Emitter Cutoff Current $(V_{EB} = -7.0 \text{ Vdc}, I_{C} = 0)$ $(V_{EB} = -5.0 \text{ Vdc}, I_{C} = 0)$	2N4036 2N4037	IEBO		-10 -1.0	μAdc		

1. Pulse Test: Pulse Width  $\leq$  300  $\mu s,$  Duty Cycle  $\leq$  2.0%.



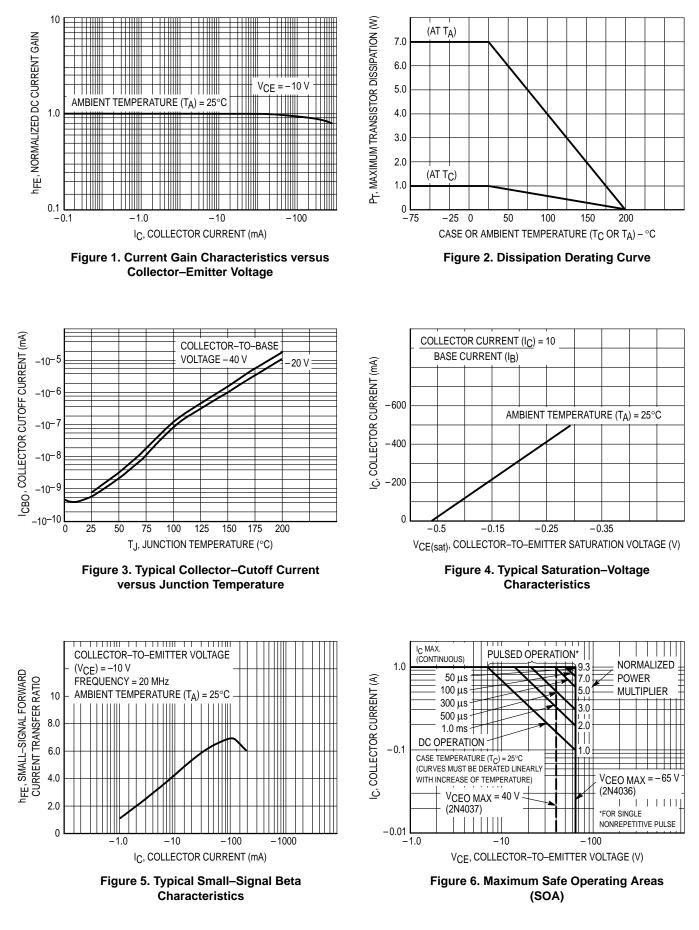
#### 2N4036 2N4037

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

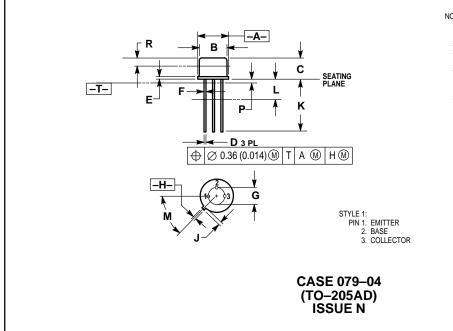
Characteristic	Symbol	Min	Max	Unit	
ON CHARACTERISTICS		•		1	
DC Current Gain ( $I_C = -0.1 \text{ mAdc}, V_{CE} = -10 \text{ Vdc}$ )	2N4036	hFE	20	_	—
$(I_{C} = -1.0 \text{ mAdc}, V_{CE} = -10 \text{ Vdc})$	2N4037		15	_	
$(I_{C} = -150 \text{ mAdc}, V_{CE} = -10 \text{ Vdc})^{(1)}$	2N4036 2N4037		40 50	140 250	
(I <sub>C</sub> = −150 mAdc, V <sub>CE</sub> = −2.0 Vdc) <sup>(1)</sup>	2N4036		20	200	
$(I_{C} = -500 \text{ mAdc}, V_{CE} = -10 \text{ Vdc})^{(1)}$	2N4036		20	_	
Collector-Emitter Saturation Voltage <sup>(1)</sup> ( $I_C = -150$ mAdc, $I_B = -15$ mAdc)	2N4036 2N4037	V <sub>CE(sat)</sub>		-0.65 -1.4	Vdc
Base-Emitter Saturation Voltage <sup>(1)</sup> ( $I_C = -150 \text{ mAdc}, I_B = -15 \text{ mAdc}$ )	2N4036	V <sub>BE(sat)</sub>	—	-1.4	Vdc
Base-Emitter On Voltage(1) (I <sub>C</sub> = -150 mAdc, V <sub>CE</sub> = -10 Vdc)	2N4037	V <sub>BE</sub> (on)	—	-1.5	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Collector–Base Capacitance ( $V_{CB} = -10$ Vdc, f = 1.0 MHz)	2N4037	C <sub>cb</sub>	—	30	pF
Current Gain — High Frequency ( $I_C = -50$ mAdc, $V_{CE} = -10$ Vdc, f = 20 MHz)	2N4036 2N4037	h <sub>fe</sub>	3.0 3.0	— 10	
SWITCHING CHARACTERISTICS		•		1	
Rise Time (I <sub>B1</sub> = –15 mAdc)	2N4036	tr	—	70	ns
Storage Time (I <sub>B2</sub> = -15 mAdc)	2N4036	t <sub>S</sub>	—	600	ns
Fall Time (I <sub>B2</sub> = –15 mAdc)	2N4036	tf	—	100	ns
Turn–On Time (I <sub>B1</sub> = I <sub>B2</sub> )	2N4036	ton	—	110	ns
Turn–Off Time (I <sub>B1</sub> = I <sub>B2</sub> )	2N4036	toff	—	700	ns

1. Pulse Test: Pulse Width  $\leq$  300 µs, Duty Cycle  $\leq$  2.0%.

#### 2N4036 2N4037



#### PACKAGE DIMENSIONS



NOTES

 DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.

2. CONTROLLING DIMENSION: INCH.

 DIMENSION J MEASURED FROM DIMENSION A MAXIMUM.

4. DIMENSION B SHALL NOT VARY MORE THAN 0.25 (0.010) IN ZONE R. THIS ZONE

5. DIMENSION F APPLIES BETWEEN DIMENSION P AND L. DIMENSION D APPLIES BETWEEN DIMENSION P AND L. DIMENSION D APPLIES BETWEEN DIMENSION L AND K MINIMUM. LEAD DIAMETER IS UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.335	0.370	8.51	9.39
В	0.305	0.335	7.75	8.50
С	0.240	0.260	6.10	6.60
D	0.016	0.021	0.41	0.53
Е	0.009	0.041	0.23	1.04
F	0.016	0.019	0.41	0.48
G	0.200 BSC		5.08 BSC	
Н	0.028	0.034	0.72	0.86
ſ	0.029	0.045	0.74	1.14
Κ	0.500	0.750	12.70	19.05
L	0.250		6.35	
Μ	45 °BSC		45 °	BSC
Ρ		0.050		1.27
R	0.100		2.54	

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