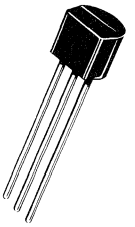
2N6067 (SILICON)

PNP SILICON ANNULAR TRANSISTOR

. . . designed for medium-current saturated switching and core driver applications.

- Fast Switching Times @ V_{CC} = 40 Vdc –
  t_{on} = 40 ns (Max)
  t_{off} = 80 ns (Max)
- Current-Gain–Bandwidth Product –
  f_T = 150 MHz (Min) @ I_C = 50 mAdc
- Low Collector-Emitter Saturation Voltage –
  $V_{CE(sat)}$ = 0.6 Vdc (Max) @ I_C = 500 mAdc

PNP SILICON SWITCHING TRANSISTOR



*MAXIMUM RATINGS

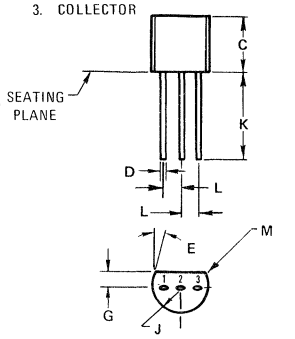
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	40	Vdc
Collector-Base Voltage	V_{CB}	50	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current – Continuous	I_C	1.0	Adc
Total Power Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	mW mW/°C
Total Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	Watt mW/°C
Operating and Storage Junction Temperature Range	T_J,T_{stg}	-55 to +150	°C

*THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R\theta_{JC}$	83.3	°C/W
Thermal Resistance, Junction to Ambient	$R\theta_{JA}$	200	°C/W

*Indicates JEDEC Registered Data

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES MAX
C	4.450	4.700	0.175	0.185
D	0.407	0.482	0.016	0.019
E	5° NOM		5° NOM	
G	1.150	1.390	0.045	0.055
J	2.160	2.420	0.085	0.095
K	12.700	–	0.500	–
L	1.270 TP		0.050 TP	
M	0.076	0.330	0.003	0.013

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

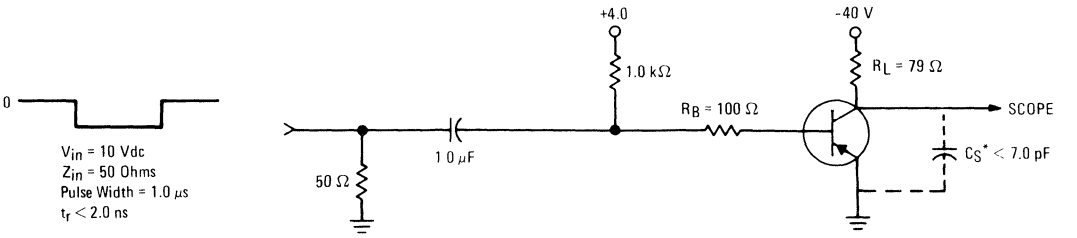
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ① (I_C = 10 mAdc, I_B = 0)	BV_{CEO}	40	–	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	BV_{CBO}	50	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	BV_{EBO}	5.0	–	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	–	500	nAdc
Emitter Cutoff Current (V_{EB} = 3.0 Vdc, I_C = 0)	I_{EBO}	–	100	nAdc
ON CHARACTERISTICS				
DC Current Gain ①	h_{FE}			–
(I_C = 10 mAdc, V_{CE} = 1 0 Vdc)		40	–	
(I_C = 100 mAdc, V_{CE} = 1 0 Vdc)		50	200	
(I_C = 500 mAdc, V_{CE} = 1.0 Vdc)		25	150	
Collector-Emitter Saturation Voltage ①	$V_{CE(sat)}$			Vdc
(I_C = 100 mAdc, I_B = 10 mAdc)		–	0.3	
(I_C = 500 mAdc, I_B = 50 mAdc)		–	0.6	
Base-Emitter Saturation Voltage ①	$V_{BE(sat)}$			Vdc
(I_C = 100 mAdc, I_B = 10 mAdc)		–	0.9	
(I_C = 500 mAdc, I_B = 50 mAdc)		0 8	1 1	
DYNAMIC CHARACTERISTICS				
Current-Gain–Bandwidth Product ② (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	150	–	MHz
Collector-Base Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)	C_{cb}	–	16	pF
Emitter-Base Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 100 kHz)	C_{eb}	–	80	pF
SWITCHING CHARACTERISTICS				
Turn-On Time	t_{on}	–	40	ns
Delay Time (V_{CC} = 40 Vdc, I_C = 500 mAdc, I_{B1} = 50 mAdc, $V_{EB(off)}$ = 4.0 Vdc)	t_d	–	17	ns
Rise Time	t_r	–	28	ns
Turn-Off Time	t_{off}	–	80	ns
Storage Time (V_{CC} = 40 Vdc, I_C = 500 mAdc, I_{B1} = I_{B2} = 50 mAdc)	t_s	–	70	ns
Fall Time	t_f	–	25	ns

*Indicates JEDEC Registered Data.

① Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

② f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

FIGURE 1 – SWITCHING TIMES TEST CIRCUIT



TYPICAL TRANSIENT CHARACTERISTICS

FIGURE 2 – DELAY TIME

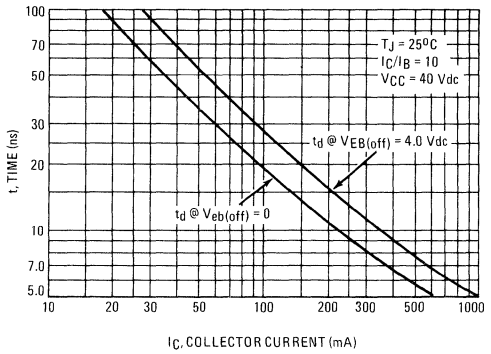


FIGURE 3 – RISE TIME

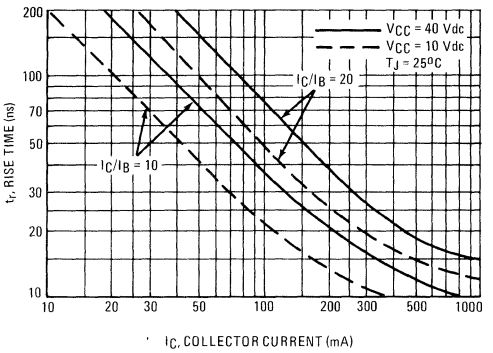


FIGURE 4 – STORAGE TIME

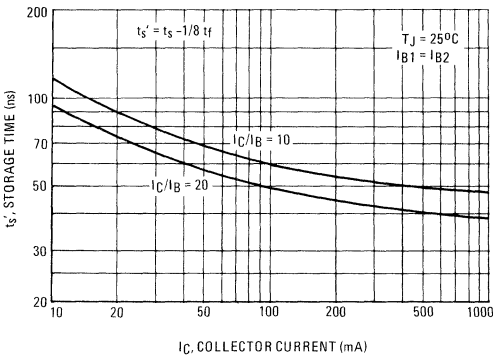


FIGURE 5 – STORAGE TIME CONTOURS

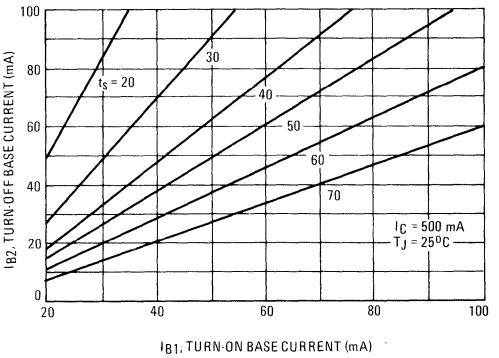


FIGURE 6 – FALL TIME

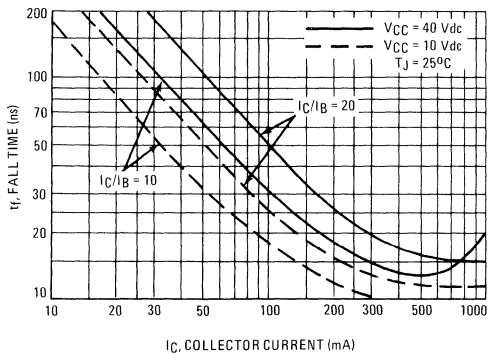
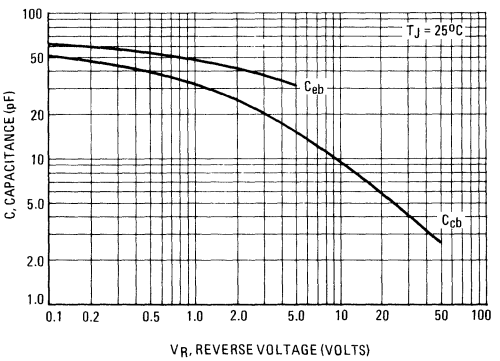


FIGURE 7 – CAPACITANCES



TYPICAL STATIC CHARACTERISTICS

FIGURE 8 – DC CURRENT GAIN

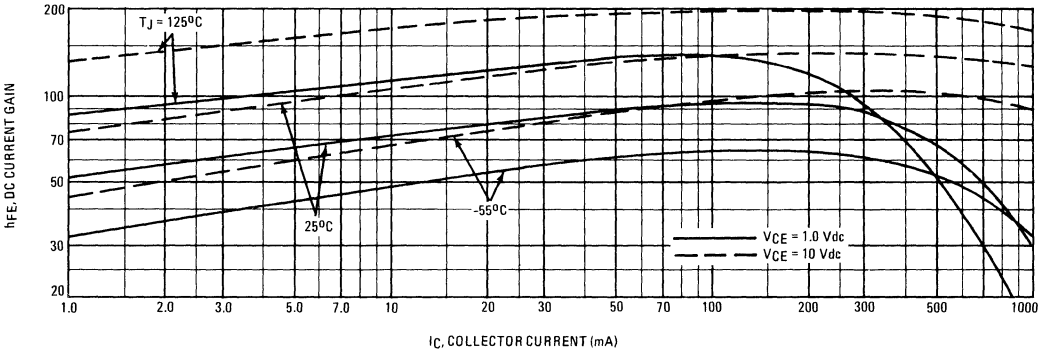


FIGURE 9 – SATURATION REGION

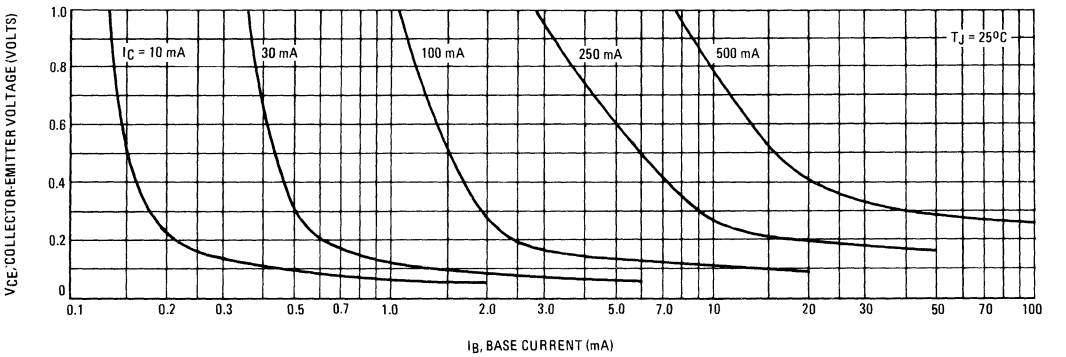


FIGURE 10 – "ON" VOLTAGES

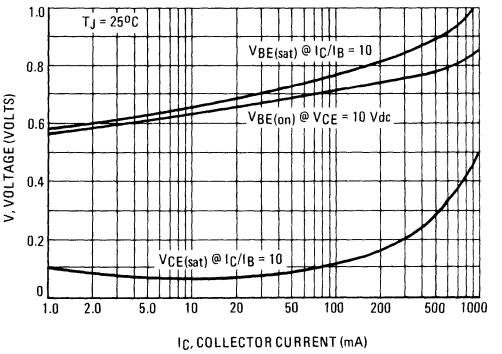


FIGURE 11 – TEMPERATURE COEFFICIENTS