2N2696 (SILICON)
2N2927

PNP SILICON ANNULAR TRANSISTORS

. . . designed for use in medium-speed, non-saturated switching applications.

- High Collector-Emitter Breakdown Voltage — BV_{CEO} = 25 Vdc @ I_C = 100 μAdc
- High Collector-Base Breakdown Voltage — BV_{CBO} = 25 Vdc @ I_C = 100 μAdc

PNP SILICON SWITCHING TRANSISTORS

2N2696

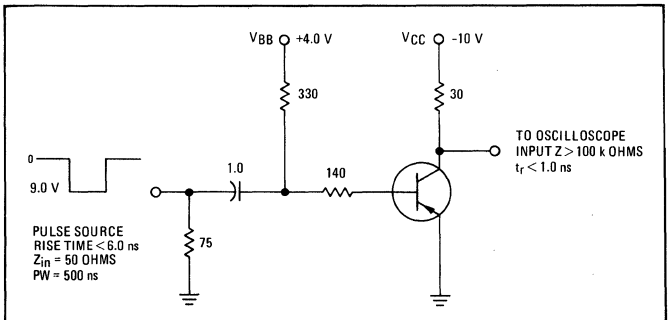
2N2927

MAXIMUM RATINGS

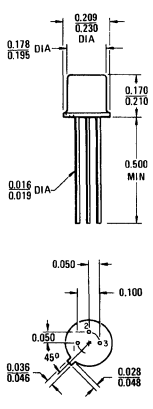
Rating	Symbol	2N2696	2N2927	Unit
Collector-Emitter Voltage	V_{CEO}	25		Vdc
Collector-Base Voltage	V_{CB}	25		Vdc
Emitter-Base Voltage	V_{EB}	4.0		Vdc
Collector Current — Continuous	I_C	500		mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.36 2.06	0.8 4.56	Watts mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.2 6.85	3.0 17.1	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J,T_{stg}	-65 to +200		°C

*Indicates JEDEC Registered Data.

FIGURE 1 — TURN-ON AND TURN-OFF TIME TEST CIRCUIT



2N2696

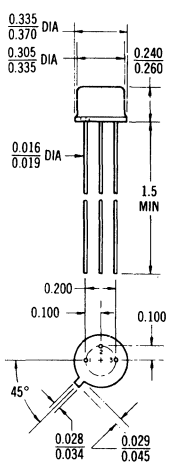


Pin 1. Emitter
2. Base
3. Collector

Collector connected to case

CASE 22 (1)
(TO-18)

2N2927



Pin 1. Emitter
2. Base
3. Collector

Collector connected to case

CASE 31 (1)
(TO-5)

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage**		BV_{CEO}			Vdc
(I_C = 100 μAdc, I_B = 0)	2N2927		25	–	
(I_C = 10 mAdc, I_B = 0)	2N2696		25	–	
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)		BV_{CBO}	25	–	Vdc
Collector Cutoff Current (V_{CE} = 15 Vdc, V_{BE} = 0)	2N2927	I_{CES}	–	25	nAdc
Collector Cutoff Current		I_{CBO}			
(V_{CB} = 10 Vdc, I_E = 0)			–	0.025	μAdc
(V_{CB} = 10 Vdc, I_E = 0, T_A = 150°C)			–	5.0	μAdc
(V_{CB} = 15 Vdc, I_E = 0, T_A = 125°C)	2N2927		–	5.0	μAdc
Emitter Cutoff Current (V_{EB} = 4.0 Vdc, I_C = 0)		I_{EBO}	–	100	μAdc
Base Current (V_{CE} = 15 Vdc, V_{BE} = 0)	2N2927	I_B	–	25	nAdc
ON CHARACTERISTICS					
DC Current Gain		h_{FE}			–
(I_C = 50 mAdc, V_{CE} = 1.0 Vdc)			30	130	
(I_C = 50 mAdc, V_{CE} = 1.0 Vdc, T_A = -55°C)			12	–	
(I_C = 300 mAdc, V_{CE} = 2.0 Vdc)(1)			20	–	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			Vdc
(I_C = 50 mAdc, I_B = 2.5 mAdc)			–	0.25	
(I_C = 300 mAdc, I_B = 30 mAdc)			–	1.0	
Base-Emitter Saturation Voltage		$V_{BE(sat)}$			Vdc
(I_C = 50 mAdc, I_B = 2.5 mAdc)			–	1.1	
(I_C = 300 mAdc, I_B = 30 mAdc)			–	2.0	
Base-Emitter On Voltage (I_C = 50 mAdc, V_{CE} = 1.0 Vdc)	2N2927	$V_{BE(on)}$	–	1.0	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 140 kHz)		C_{ob}	–	20	pF
Input Impedance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)		h_{ie}	–	1500	ohms
Voltage Feedback Ratio (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)		h_{re}	–	26	X 10^{-4}
Small-Signal Current Gain		h_{fe}			–
(I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)			25	180	
(I_C = 50 mAdc, V_{CE} = 3.0 Vdc, f = 100 MHz)			1.0	–	
Output Admittance (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)		h_{oe}	–	1200	μmhos
SWITCHING CHARACTERISTICS					
Turn-On Time	(V_{CC} = 10 Vdc, $I_C \approx$ 300 mAdc, $I_{B1} \approx$ 30 mAdc) (See Figure 1)	t_{on}	–	75	ns
Turn-Off Time	(V_{CC} = 10 Vdc, $I_C \approx$ 300 mAdc, $I_{B1} = I_{B2} \approx$ 30 mAdc) (See Figure 1)	t_{off}	–	170	ns

*Indicates JEDEC Registered Data.
**Motorola Guarantees this data in addition to JEDEC Registered Data.
(1)Pulse Test: Pulse Width = 300 μs, Duty Cycle = 1.0%.