

2N2959

NPN silicon annular transistors for high-speed switching and amplifier applications.



(TO-39)



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

Collector connected to case

*MAXIMUM RATINGS

Rating	Symbol		Unit
Collector-Base Voltage	V_{CB}	60	Vdc
Collector-Emitter Voltage	V_{CEO}	20	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector-Current	I_C	600	mAdc
Total Device Dissipation 25°C Case Temperature Derate above 25°C	P_D	3.0 20	Watts mW/°C
Total Device Dissipation 25°C Ambient Temperature Derate above 25°C	P_D	0.6 4.00	Watts mW/°C
Junction Temperature Range	T_J	-65 to +175	°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

* Indicates JEDEC Registered Data



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*ELECTRICAL CHARACTERISTICS (I_A 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Collector Cutoff Current (V _{CB} = 50 Vdc, I _E = 0) (V _{CB} = 50 Vdc, I _E = 0, T _A = 150°C)	I _{CBO}	---	0.025 15	μAdc
Collector Cutoff Current (V _{CE} = 30 Vdc, V _{BE} = 0.5 Vdc)	I _{CEX}	---	.050	μAdc
Base Cutoff Current (V _{CE} = 30 Vdc, V _{BE} = 0.5 Vdc)	I _{BL}	---	.050	μAdc
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	BV _{CBO}	60	---	Vdc
Collector-Emitter Breakdown Voltage ⁽¹⁾ (I _C = 10 mAdc, pulsed, I _B = 0)	BV _{CEO}	20	---	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	BV _{EBO}	5.0	---	Vdc
Collector Saturation Voltage ⁽¹⁾ (I _C = 150 mAdc, I _B = 15 mAdc)	V _{CE} (sat)	---	0.5	Vdc
Base-Emitter Saturation Voltage ⁽¹⁾ (I _C = 150 mAdc, I _B = 15 mAdc)	V _{BE} (sat)	---	1.3	Vdc
DC Forward Current Transfer Ratio (I _C = 150 mAdc, V _{CE} = 10 Vdc)	h _{FE}	100	300	---
Common-Base Open Circuit Output Capacitance (V _{CB} = 10 V, I _E = 0, f = 100 kHz)	C _{ob}	---	8.0	pF
Delay Time (V _{CC} = 30 V, I _{CS} = 150 mA, I _{B1} = 15 mA)	t _d	---	20	ns
Rise Time (V _{CC} = 30 V, I _{CS} = 150 mA, I _{B1} = 15 mA)	t _r	---	75	ns
Storage Time (V _{CC} = 6 V, I _{CS} = 150 mA, I _{B1} = 15 mA, I _{B2} = 15 mA)	t _s	---	300	ns
Fall Time (V _{CC} = 6 V, I _{CS} = 150 mA, I _{B1} = 15 mA, I _{B2} = 15 mA)	t _f	---	200	ns
Current Gain-Bandwidth Product (I _C = 20 mA, V _{CE} = 20 V, f = 100 MHz)	f _T	250	---	MHz

⁽¹⁾ PULSE TEST: Pulse width ≤ 300 μs, duty cycle ≤ 2%

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