

UNITIZED DUAL NPN SILICON TRANSISTOR

Qualified per MIL-PRF-19500/270

Devices

2N2060
2N2060L

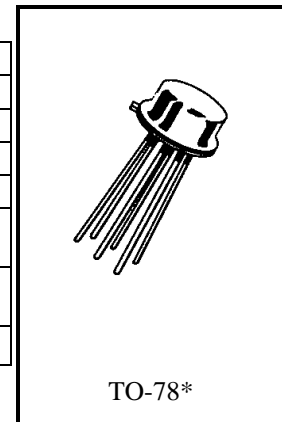
Qualified Level

JAN
JANTX
JANTXV

MAXIMUM RATINGS

Ratings		Symbol	2N2060		Unit
Collector-Emitter Voltage		V_{CEO}	60		Vdc
Collector-Base Voltage		V_{CBO}	100		Vdc
Emitter-Base Voltage		V_{EBO}	7.0		Vdc
Collector Current		I_C	500		mAdc
			One Section	Both Sections	
Total Power Dissipation	@ $T_A = +25^{\circ}\text{C}$ ⁽¹⁾	P_T	540	600	mW
	@ $T_C = +25^{\circ}\text{C}$ ⁽²⁾		1.5	2.12	W
Operating & Storage Junction Temperature Range		T_J, T_{stg}	-65 to +200		$^{\circ}\text{C}$

- 1) Derate linearly 3.08 mW/ $^{\circ}\text{C}$ for $T_A > 25^{\circ}\text{C}$ for one section, 3.48 mW/ $^{\circ}\text{C}$ for both sections
 2) Derate linearly 8.6 mW/ $^{\circ}\text{C}$ for $T_C > 25^{\circ}\text{C}$ for one section, 12.1 mW/ $^{\circ}\text{C}$ for both sections



*See appendix A for package outline

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

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ⁽³⁾ $R_{BE} \leq 10 \Omega, I_C = 10 \text{ mAdc}$	$V_{(BR)CER}$	80		Vdc
Collector-Emitter Breakdown Voltage $I_C = 30 \text{ mAdc}$	$V_{(BR)CEO}$	60		Vdc
Collector-Base Cutoff Current $V_{CB} = 100 \text{ Vdc}$ $V_{CB} = 80 \text{ Vdc}$	I_{CBO}		10 2.0	μAdc ηAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$	I_{EBO}		10 2.0	μAdc ηAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽³⁾				
Forward-Current Transfer Ratio $I_C = 10 \mu\text{A dc}, V_{CE} = 5.0 \text{ V dc}$ $I_C = 100 \mu\text{A dc}, V_{CE} = 5.0 \text{ V dc}$ $I_C = 1.0 \text{ mA dc}, V_{CE} = 5.0 \text{ V dc}$ $I_C = 10 \text{ mA dc}, V_{CE} = 5.0 \text{ V dc}$	h_{FE}	25 30 40 50	75 90 120 150	
Collector-Emitter Saturation Voltage $I_C = 50 \text{ mA dc}, I_B = 5.0 \text{ mA dc}$	$V_{CE(sat)}$		0.3	Vdc
Base-Emitter Saturation Voltage $I_C = 50 \text{ mA dc}, I_B = 5.0 \text{ mA dc}$	$V_{BE(sat)}$		0.9	Vdc

DYNAMIC CHARACTERISTICS

Common Emitter Small-Signal Short-Circuit Forward-Current Transfer ratio $I_C = 50 \text{ mA dc}, V_{CE} = 10 \text{ V dc}, f = 20 \text{ MHz}$	$ h_{fe} $	3	25	
Small-Signal Short-Circuit Input Impedance $I_C = 1.0 \text{ mA dc}, V_{CB} = 5.0 \text{ V dc}, f = 1.0 \text{ kHz}$	h_{ib}	20	30	Ω
Small-Signal Short-Circuit Forward-Current Transfer Ratio $I_C = 1.0 \text{ mA dc}, V_{CE} = 5.0 \text{ V dc}, f = 1.0 \text{ kHz}$	h_{fe}	50	150	
Small-Signal Short-Circuit Input Impedance $I_C = 1.0 \text{ mA dc}, V_{CE} = 5.0 \text{ V dc}, f = 1.0 \text{ kHz}$	h_{ie}	1,000	4,000	Ω
Small-Signal Open-Circuit Output Admittance $I_C = 1.0 \text{ mA dc}, V_{CE} = 5.0 \text{ V dc}, f = 1.0 \text{ kHz}$	h_{oe}	0	16	μmhos
Input Capacitance $V_{EB} = 0.5 \text{ V dc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{ibo}		85	pF
Output Capacitance $V_{CB} = 10 \text{ V dc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$	C_{obo}		15	pF

(3)Pulse Test: Pulse Width 250 to 350 μs , Duty Cycle $\leq 2.0\%$.