

**2N2060,A**  
**2N2223,A**  
**2N2480,A**



**DUAL**  
**AMPLIFIER TRANSISTOR**  
NPN SILICON

**MAXIMUM RATINGS**

Rating	Symbol	2N2060,A 2N2223,A	2N2480	2N2480A	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	60	40	40	V <sub>dc</sub>
Collector-Emitter Voltage	V <sub>CER</sub>	80	—	—	V <sub>dc</sub>
Collector-Base Voltage	V <sub>CB0</sub>	100	75	80	V <sub>dc</sub>
Emitter-Base Voltage	V <sub>EBO</sub>	7.0	5.0	5.0	V <sub>dc</sub>
Collector Current — Continuous	I <sub>C</sub>	500			mA <sub>dc</sub>
		One Die		All Die Equal Power	
Total Device Dissipation @ T <sub>A</sub> = 25°C	P <sub>D</sub>	2N2060,A	0.5	0.6	mW
		2N2223,A	0.5	0.6	
		2N2480,A	0.3	0.6	
Derate above 25°C					
	P <sub>D</sub>	2N2060,A	2.86	3.43	mW/°C
		2N2223,A	2.86	3.43	
		2N2480,A	1.72	3.43	
Derate above 25°C					
Total Device Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	2N2060,A	1.5	3.0	Watts
		2N2223,A	1.6	3.0	
		2N2480,A	1.0	2.0	
Derate above 25°C					
	P <sub>D</sub>	2N2060,A	8.6	17.2	mW/°C
		2N2223,A	9.1	11.4	
		2N2480,A	5.7	11.4	
Derate above 25°C					
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-65 to +200			°C

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted.)**

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage(1) (I <sub>C</sub> = 100 mA <sub>dc</sub> , R <sub>BE</sub> ≤ 10 ohms)	V <sub>CER(sus)</sub>	80	—	V <sub>dc</sub>
Collector-Emitter Sustaining Voltage(1) (I <sub>C</sub> = 20 mA <sub>dc</sub> , I <sub>B</sub> = 0)	V <sub>CEO(sus)</sub>	2N2480	40	—
		2N2480A	40	—
(I <sub>C</sub> = 30 mA <sub>dc</sub> , I <sub>B</sub> = 0)		2N2060, 2N2060A, 2N2223, 2N2223A	60	—
Collector-Base Breakdown Voltage (I <sub>C</sub> = 100 μA <sub>dc</sub> , I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	100	—	V <sub>dc</sub>
		2N2060, 2N2060A, 2N2223, 2N2223A	75	—
		2N2480*	80	—
		2N2480A*	80	—
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 100 μA <sub>dc</sub> , I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	7.0	—	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = 30 V <sub>dc</sub> , I <sub>E</sub> = 0, T <sub>A</sub> = 150°C)	I <sub>CBO</sub>	2N2480, 2N2480A	—	15
			—	0.050
(V <sub>CB</sub> = 60 V <sub>dc</sub> , I <sub>E</sub> = 0)		2N2480	—	0.020
(V <sub>CB</sub> = 80 V <sub>dc</sub> , I <sub>E</sub> = 0)		2N2060, 2N2060A	—	0.002
		2N2223, 2N2223A	—	0.010
(V <sub>CB</sub> = 80 V <sub>dc</sub> , I <sub>E</sub> = 0, T <sub>A</sub> = 150°C)		2N2060, 2N2060A	—	10
		2N2223, 2N2223A	—	15
Emitter Cutoff Current (V <sub>BE</sub> = 5.0 V <sub>dc</sub> , I <sub>C</sub> = 0)	I <sub>EBO</sub>	—	2.0	nA <sub>dc</sub>
		2N2060, 2N2060A	—	10
		2N2223, 2N2223A	—	50
		2N2480	—	20
		2N2480A	—	20

