

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/514

DEVICES

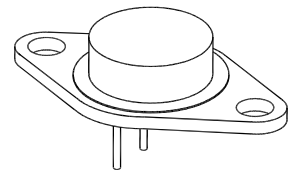
2N6274 2N6277

LEVELS

**JAN
 JANTX
 JANTXV**

ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Condition	Symbol	2N6274	2N6277	Unit
Collector-Emitter Voltage	V_{CEO}	100	150	Vdc
Collector-Base Voltage	V_{CBO}	120	180	Vdc
Emitter-Base Voltage	V_{EBO}	6.0	6.0	Vdc
Base Current	I_B	20	20	Adc
Collector Current	I_C	50	50	Adc
Total Power Dissipation	P_T	@ $T_C = +25^\circ\text{C}$ ⁽¹⁾ 250 @ $T_C = +100^\circ\text{C}$ ⁽²⁾ 143		W
Operating & Storage Temperature Range	T_j, T_{stg}	-65 to +200		$^\circ\text{C}$



TO-3 (TO-204AE)

THERMAL CHARACTERISTICS

Parameters / Test Conditions	Symbol	Max	Unit
Thermal resistance, Junction-to-Case	$R_{\theta JC}$	0.7	$^\circ\text{C}/\text{W}$

Note: 1) Derate linearly 1.43 W/ $^\circ\text{C}$ between $T_C = +25^\circ\text{C}$ and $T_C = 200^\circ\text{C}$

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS ⁽¹⁾				
Collector-Emitter Breakdown Voltage $I_C = 50\text{mA}$	$V_{(BR)CEO}$	100		Vdc
		150		
Collector-Emitter Cutoff Current $V_{CE} = 50\text{Vdc}$	I_{CEO}		50	μAdc
			50	
Collector-Emitter Cutoff Current $V_{CE} = 120\text{Vdc}, V_{BE} = -1.5\text{Vdc}$	I_{CEX}		10	μAdc
			10	
Collector-Base Cutoff Current $V_{CB} = 120\text{Vdc}$	I_{CBO}		10	μAdc
			10	
Emitter-Base Cutoff Current $V_{EB} = 6.0\text{Vdc}$	I_{EBO}		100	μAdc

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS ⁽²⁾				
Forward-Current Transfer Ratio $I_C = 1.0\text{A dc}$, $V_{CE} = 4.0\text{V dc}$ $I_C = 20\text{A dc}$, $V_{CE} = 4.0\text{V dc}$ $I_C = 50\text{A dc}$, $V_{CE} = 4.0\text{V dc}$	h_{FE}	50 30 10	120	
Collector-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 2.0\text{A dc}$ $I_C = 50\text{A dc}$, $I_B = 10\text{A dc}$	$V_{CE(sat)}$		1.0 3.0	Vdc
Base-Emitter Saturation Voltage $I_C = 20\text{A dc}$, $I_B = 2.0\text{A dc}$	$V_{BE(sat)}$		1.8	Vdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Magnitude of Common Emitter Small-Signal Short-Circuit, Forward Current Transfer Ratio $I_C = 1.0\text{A dc}$, $V_{CE} = 10\text{V dc}$, $f = 10\text{MHz}$	$ h_{fe} $	3.0	12	
Output Capacitance $V_{CB} = 10\text{V dc}$, $I_E = 0$, $f = 1.0\text{MHz}$	C_{obo}		600	pF

SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Time $V_{CC} = 80\text{V dc}$; $I_C = 20\text{A dc}$; $I_B = 2.0\text{A dc}$	t_{on}		0.5	μs
Turn-Off Time $V_{CC} = 80\text{V dc}$; $I_C = 20\text{A dc}$; $I_{B1} = -I_{B2} = 2.0\text{A dc}$	t_{off}		1.05	μs

SAFE OPERATING AREA

DC Tests $T_C = +25^\circ\text{C}$, 1 Cycle, $t = 1.0\text{s}$	
Test 1 $V_{CE} = 5.0\text{V dc}$, $I_C = 50\text{A dc}$	All Types
Test 2 $V_{CE} = 8.6\text{V dc}$, $I_C = 165\text{mA dc}$	All Types
Test 3 $V_{CE} = 80\text{V dc}$, $I_C = 29\text{mA dc}$	2N6274
Test 4 $V_{CE} = 120\text{V dc}$, $I_C = 110\text{mA dc}$	2N6277

(2) Pulse Test: Pulse Width = $300\mu\text{s}$, Duty Cycle $\leq 2.0\%$