

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	2N4398	2N4399	2N5745	Units
Collector-base voltage	V_{CBO}	40	60	80	V
Collector-emitter voltage	V_{CEO}	40	60	80	V
Emitter base voltage	V_{EB}	5			V
Collector current – continuous	I_C	30	30	20	A
Collector current – peak	I_C	50	50	50	A
Base current – continuous	I_B	7.5			A
Base current – peak	I_B	15			A
Total power dissipation $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	200 1.15			W W/ $^\circ\text{C}$
Operating and storage junction temperature range	T_J, T_{stg}	-65 to +200			$^\circ\text{C}$
Thermal resistance, junction to case	R_{thj-c}	0.875			$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-emitter sustaining voltage ⁽¹⁾ ($I_B = 0, I_C = 200\text{mA}$)	2N4398 2N4399 2N5745	$V_{CEO(sus)}$	40 60 80	- - - V
Collector cutoff current ($V_{CE} = 40\text{V}, I_B = 0$) ($V_{CE} = 60\text{V}, I_B = 0$) ($V_{CE} = 80\text{V}, I_B = 0$)	2N4398 2N4399 2N5745	I_{CEO}	- - -	5.0 5.0 5.0 mA
Collector cutoff current ($V_{CE} = 40\text{V}, V_{BE(off)} = 1.5\text{V}$) ($V_{CE} = 60\text{V}, V_{BE(off)} = 1.5\text{V}$) ($V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}$) ($V_{CE} = 30\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = 150^\circ\text{C}$) ($V_{CE} = 80\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = 150^\circ\text{C}$)	2N4398 2N4399 2N5745 2N4398, 2N4399 2N5745	I_{CEX}	- - - - -	5.0 5.0 5.0 10 10 mA
Emitter cutoff current ($I_C = 0, V_{EB} = 5.0\text{V}$)		I_{EBO}	-	5.0 mA

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise specified)

Characteristic		Symbol	Min	Max	Unit	
ON CHARACTERISTICS						
DC current gain						
($I_C = 1.0\text{A}$, $V_{CE} = 2.0\text{V}$)	All Types	h_{FE}	40	-	-	
($I_C = 10\text{A}$, $V_{CE} = 2.0\text{V}$)	2N5745		15	60		
($I_C = 15\text{A}$, $V_{CE} = 2.0\text{V}$)	2N4398, 2N4399		15	60		
($I_C = 20\text{A}$, $V_{CE} = 2.0\text{V}$)	2N5745		5.0	-		
($I_C = 30\text{A}$, $V_{CE} = 4.0\text{V}$)	2N4398, 2N4399		5.0	-		
Collector emitter saturation voltage						
($I_C = 10\text{A}$, $I_B = 1.0\text{A}$)	2N4398, 2N4399	$V_{CE(sat)}$	-	0.75	V	
	2N5745		-	1.0		
($I_C = 15\text{A}$, $I_B = 1.5\text{A}$)	2N4398, 2N4399		-	1.0		
	2N5745		-	1.5		
($I_C = 20\text{A}$, $I_B = 2.0\text{A}$)	2N4398, 2N4399		-	2.0		
($I_C = 20\text{A}$, $I_B = 4.0\text{A}$)	2N5745		-	2.0		
($I_C = 30\text{A}$, $I_B = 6.0\text{A}$)	2N4398, 2N4399	-	4.0			
Base emitter saturation voltage						
($I_C = 10\text{A}$, $I_B = 1.0\text{A}$)	2N4398, 2N4399	$V_{BE(sat)}$	-	1.6	V	
	2N5745		-	1.7		
($I_C = 15\text{A}$, $I_B = 1.5\text{A}$)	2N4398, 2N4399		-	1.85		
	2N5745		-	2.0		
($I_C = 20\text{A}$, $I_B = 2.0\text{A}$)	2N4398, 2N4399		-	2.5		
($I_C = 20\text{A}$, $I_B = 4.0\text{A}$)	2N5745	-	2.5			
Base emitter on voltage						
($I_C = 10\text{A}$, $V_{CE} = 2.0\text{V}$)	2N5745	$V_{BE(ON)}$	-	1.5	V	
($I_C = 15\text{A}$, $V_{CE} = 2.0\text{V}$)	2N4398, 2N4399		-	1.7		
($I_C = 20\text{A}$, $V_{CE} = 4.0\text{V}$)	2N5745		-	2.5		
($I_C = 30\text{A}$, $V_{CE} = 4.0\text{V}$)	2N4398, 2N4399		-	3.0		
DYNAMIC CHARACTERISTICS						
Current gain bandwidth product ⁽²⁾						
($I_C = 1.0\text{A}$, $V_{CE} = 10\text{V}$, $f = 1.0\text{MHz}$)	2N4398, 2N4399	f_T	4.0	-	MHz	
	2N5745		2.0	-		
Small signal current gain						
($I_C = 1.0\text{A}$, $V_{CE} = 10\text{V}$, $f = 1.0\text{kHz}$)		h_{fe}	40	-	-	
SWITCHING CHARACTERISTICS						
Rise time	$V_{CC} = 30\text{V}$, $I_C = 10\text{A}$, $I_{B1} = I_{B2} = 1.0\text{A}$, $t_p = 0.1\text{ms}$, duty cycle $\leq 2.0\%$	2N4398, 2N4399	t_r	-	0.4	μs
		2N5745		-	1.0	
Storage time		2N4398, 2N4399	t_s	-	1.5	μs
		2N5745		-	2.0	
Fall time		2N4398, 2N4399	t_f	-	0.6	μs
		2N5745		-	1.0	

Note 1: Pulse duration = 300 μs , duty cycle $\leq 2.0\%$.

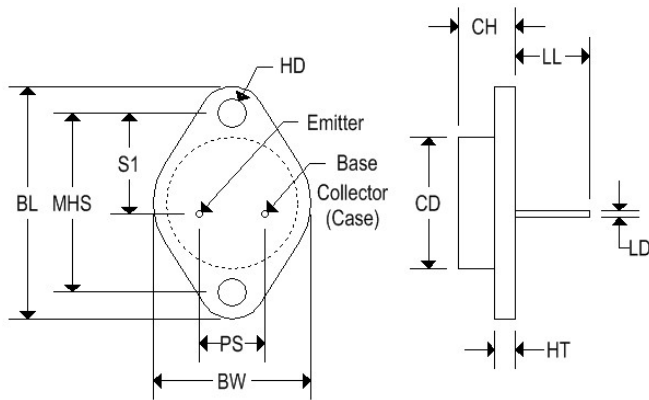
Note 2: $f_T = |h_{fe}| \cdot f_{test}$

2N4398-2N4399, 2N5745

PNP SILICON POWER TRANSISTORS

MECHANICAL CHARACTERISTICS

Case	TO-3
Marking	Alpha-numeric
Pin out	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

2N4398-2N4399, 2N5745

PNP SILICON POWER TRANSISTORS

