



PNP 2N4398 – 2N4399 – 2N5745

## SILICON POWER TRANSISTORS

They are PNP transistors mounted in Jedec TO-3 package.  
 They are intended for use in power amplifier and switching circuits applications.  
 Complement to NPN 2N5301 – 2N5302 – 2N5303.  
 Compliance to RoHS.

### ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage	2N4398	-40
		2N4399	-60
		2N5745	-80
V <sub>CBO</sub>	Collector-Base Voltage	2N4398	-40
		2N4399	-60
		2N5745	-80
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current	2N4398	-30
		2N4399	
		2N5745	-20
I <sub>CM</sub>	Collector Peak Current	50	A
I <sub>B</sub>	Base Current	-7.5	A
I <sub>BM</sub>	Base Peak Current	15	A
P <sub>TOT</sub>	Power Dissipation @ T <sub>C</sub> = 25°	200	W
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>S</sub>	Storage Temperature	-65 to +200	

### THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R <sub>thJ-C</sub>	Thermal Resistance, Junction to Case	0.875	°C/W
R <sub>thJ-A</sub>	Thermal Resistance, Junction to Ambient	35	°C/W



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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	MAx	Unit	
$V_{CEO(BR)}$	Collector-Emitter Breakdown Voltage (*)	$I_C = -200 \text{ mA}$	2N4398	-40	-	-	V
		$I_B = 0$	2N4399	-60	-	-	
			2N5745	-80	-	-	
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -40 \text{ V}, I_E = 0$	2N4398	-	-	-1	mA
		$V_{CB} = -60 \text{ V}, I_E = 0$	2N4399				
		$V_{CB} = -80 \text{ V}, I_E = 0$	2N5745				
$I_{CEO}$	Collector Cutoff Current	$V_{CE} = -40 \text{ V}, I_B = 0$	2N4398	-	-	-5	mA
		$V_{CE} = -60 \text{ V}, I_B = 0$	2N4399				
		$V_{CE} = -80 \text{ V}, I_B = 0$	2N5745				
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -5 \text{ V}, I_C = 0$	2N4398	-	-	-5	mA
			2N4399				
			2N5745				
$I_{CEX}$	Collector Cutoff Current	$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$	2N4398	-	-	-5	mA
		$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$	2N4399				
		$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$	2N5745				
		$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$ $T_C = 150^\circ\text{C}$	2N4398				
		$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$ $T_C = 150^\circ\text{C}$	2N4399				
		$V_{CE} = -40 \text{ V}, V_{BE} = 1.5 \text{ V}$ $T_C = 150^\circ\text{C}$	2N5745				
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	$I_C = -10 \text{ A}, I_B = -1 \text{ A}$	2N4398	-	-	-0.75	V
			2N4399				
			2N5745				
		$I_C = -15 \text{ A}, I_B = -1.5 \text{ A}$	2N4398	-	-	-1	
			2N4399				
			2N5745				
		$I_C = -20 \text{ A}, I_B = -2 \text{ A}$	2N4398	-	-	-2	
			2N4399				
		$I_C = -20 \text{ A}, I_B = -4 \text{ A}$	2N5745	-	-	-4	
		$I_C = -30 \text{ A}, I_B = -6 \text{ A}$	2N4398				
2N4399							
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	$I_C = -10 \text{ A}, I_B = -1 \text{ A}$	2N4398				-
			2N4399				
			2N5745				
		$I_C = -15 \text{ A}, I_B = -1.5 \text{ A}$	2N4398	-	-	-1.85	
			2N4399				
			2N5745				
		$I_C = -20 \text{ A}, I_B = -2 \text{ A}$	2N4398	-	-	-2.5	
			2N4399				
		$I_C = -20 \text{ A}, I_B = -4 \text{ A}$	2N5745	-	-	-2.5	



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### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	Min	Typ	MAx	Unit
$V_{BE(on)}$	Base-Emitter on Voltage (*)	$I_C = -15\text{ A}, V_{CE} = -2\text{ V}$	2N4398	-	-	-1.7
			2N4399			
		$I_C = -10\text{ A}, V_{CE} = -2\text{ V}$	2N5745	-	-	-1.5
			2N4398			
		$I_C = -30\text{ A}, V_{CE} = -4\text{ V}$	2N4398	-	-	-3
2N4399						
$I_C = -20\text{ A}, V_{CE} = -4\text{ V}$	2N5745	-	-	-2.5		
	2N4398					
$h_{FE}$	DC Current Gain (*)	$I_C = -1\text{ A}, V_{CE} = -2\text{ V}$	2N4398	40	-	-
			2N4399	-	-	-
			2N5745	-	-	-
		$I_C = -15\text{ A}, V_{CE} = -2\text{ V}$	2N4398	15	-	60
			2N4399			
		$I_C = -10\text{ A}, V_{CE} = -2\text{ V}$	2N5745	5	-	-
			2N4398			
		$I_C = -30\text{ A}, V_{CE} = -2\text{ V}$	2N4398	5	-	-
			2N4399			
		$I_C = -20\text{ A}, V_{CE} = -4\text{ V}$	2N5745	5	-	-
2N4398						
$f_T$	Transition Frequency	$V_{CE} = -10\text{ V}, I_C = -1\text{ A}$ $f = 1\text{ MHz}$	2N4398	4	-	-
			2N4399			
			2N5745			

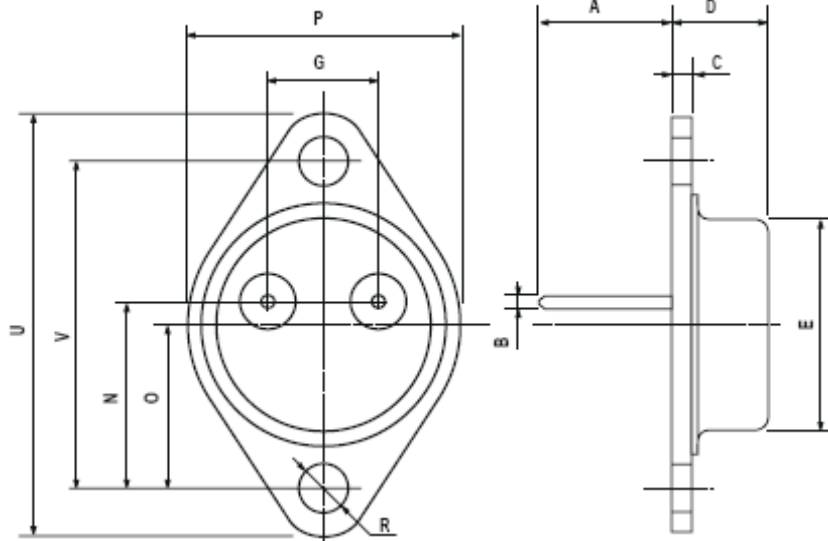
(\*) Pulse Width  $\approx 300\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$



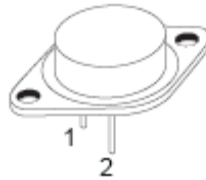
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### MECHANICAL DATA CASE TO-3

DIMENSIONS (mm)		
	min	max
A	11	13.10
B	0.97	1.15
C	1.5	1.65
D	8.32	8.92
F	19	20
G	10.70	11.1
N	16.50	17.20
P	25	26
R	4	4.09
U	38.50	39.30
V	30	30.30



Pin 1 :	Base
Pin 2 :	Emitter
Case :	Collector



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