

### 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

Ratings	Symbol	2N3879	Unit
Collector-Emitter Voltage	$V_{CEO}$	75	Vdc
Collector-Base Voltage	$V_{CBO}$	120	Vdc
Emitter-Base Voltage	$V_{EBO}$	7.0	Vdc
Base Current	$I_B$	5.0	Adc
Collector Current	$I_C$	7.0	Adc
Total Power Dissipation $T_A = 25^\circ\text{C}$ <sup>(1)</sup>	$P_D$	35	W
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	5.0	$^\circ\text{C}/\text{W}$

Note 1: Derate linearly @ 200mW/ $^\circ\text{C}$  for  $T_A > 25^\circ\text{C}$

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

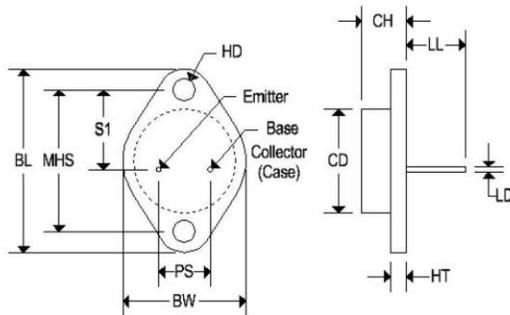
Characteristics	Symbol	Min.	Max.	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage $I_C = 200\text{ mA}$	$V_{(BR)CEO}$	75	-	Vdc
Collector-Emitter Cutoff Current $V_{CE} = 50\text{ Vdc}$	$I_{CEO}$	-	5.0	mAdc
Collector-Emitter Cutoff Current $V_{CE} = 50\text{ Vdc}, V_{BE} = 1.5\text{V}$	$I_{CEX}$	-	4.0	mAdc
Collector-Base Cutoff Current $V_{CB} = 120\text{ Vdc}$	$I_{CBO}$	-	25	mAdc
Emitter-Base Cutoff Current $V_{EB} = 7.0\text{ Vdc}$	$I_{EBO}$	-	10	mAdc
Forward Current Transfer Ratio $I_C = 0.5\text{ Adc}, V_{CE} = 5.0\text{ Vdc}$ $I_C = 4.5\text{ Adc}, V_{CE} = 5.0\text{ Vdc}$ $I_C = 4.0\text{ Adc}, V_{CE} = 2.0\text{ Vdc}$	$h_{FE}$	40 20 12	- 80 100	-
Collector-Emitter Saturation Voltage $I_C = 4.0\text{ Adc}, I_B = 0.4\text{ Adc}$	$V_{CE(sat)}$	-	1.2	Vdc
Base-Emitter Saturation Voltage $I_C = 4.0\text{ Adc}, I_B = 0.4\text{ Adc}$	$V_{BE(sat)}$	-	2.0	Vdc
Base-Emitter On Voltage $I_C = 4.0\text{ Adc}, V_{CE} = 2.0\text{V}$	$V_{BE(ON)}$	-	1.8	Vdc
<b>DYNAMIC CHARACTERISTICS</b>				
Magnitude of Common Emitter Small-Signal Short Circuit Forward Current Transfer Ratio $I_C = 0.5\text{ Adc}, V_{CE} = 4.0\text{ Vdc}, f = 100\text{ kHz}$	$h_{FEI}$	4.0	20	-

Characteristics	Symbol	Min.	Max.	Unit
<b>Output Capacitance</b> $V_{CB} = 10 \text{ Vdc}, I_E = 0, 100\text{kHz} \leq f \leq 1.0\text{MHz}$	Cobo	-	300	pF
<b>SWITCHING CHARACTERISTICS</b>				
<b>Turn-On Time</b> $V_{CC} = 30\text{Vdc}, I_C = 4.0 \text{ Adc}, I_B = 40\text{mAdc}$	$t_{on}$	-	0.44	$\mu\text{s}$
<b>Turn-Off Time</b> $V_{CC} = 30\text{Vdc}, I_C = 4.0 \text{ Adc}, I_B = -I_B = 40\text{mAdc}$	$t_{off}$	-	1.2	$\mu\text{s}$
<b>SAFE OPERATING AREA</b>				
<b>Dc Tests</b> $T_C = 25^\circ\text{C}, 1 \text{ cycle}, t = 1.0\text{s}$ <b>Test 1</b> $V_{CE} = 5.0 \text{ Vdc}, I_C = 7.0 \text{ Adc}$ <b>Test 2</b> $V_{CE} = 28 \text{ Vdc}, I_C = 500 \text{ mAdc}$ <b>Test 3</b> $V_{CE} = 40 \text{ Vdc}, I_C = 500 \text{ mAdc}$ <b>Test 4</b> $V_{CE} = 75 \text{ Vdc}, I_C = 100 \text{ mAdc}$				

Note 1: Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

### MECHANICAL CHARACTERISTICS

Case	TO-66
Marking	Alpha-numeric
Polarity	See below



Dim	TO-66			
	Inches		Millimeters	
	Min	Max	Min	Max
BL	1.205	1.280	30.60	32.50
CD	0.445	0.557	11.303	14.148
CH	0.257	0.284	6.540	7.220
LL	0.374	0.413	9.500	10.50
BW	0.680	0.727	17.26	18.46
LD	0.030	0.036	0.760	0.920
HT	0.054	0.065	1.380	1.650
MHS	0.951	0.976	24.16	24.78
S1	0.545	0.614	13.84	15.60
HD	0.131	0.154	3.320	3.920
PS	0.191	0.210	4.860	5.340