

## 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

Parameter	Symbol	2SD871	Unit
Collector-base voltage	$V_{CBO}$	1500	V
Collector-emitter voltage	$V_{CEO}$	600	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current – continuous	$I_C$	6.0	A
Emitter current	$I_{EBO}$	3.0	A
Total power dissipation Derate above 25°C	$P_D$	50 0.4	W W/°C
Operating storage and junction temperature range	$T_J, T_{stg}$	-65 to +150	°C
Thermal resistance, junction to case	$R_{\theta JC}$	2.5	°C/W

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

Parameter	Symbol	Conditions	2SD871			Unit
			Min	Typ	Max	
Collector cutoff current	$I_{CBO}$	$V_{CB} = 500\text{V}, I_E = 0$	-	-	10	$\mu\text{A}$
Emitter-base voltage	$V_{EBO}$	$I_E = 200\text{mA}, I_C = 0$	5	-	-	V
DC current gain <sup>(1)</sup>	$h_{FE}$	$I_C = 1.0\text{A}, V_{CE} = 5\text{V}$	8	-	-	-
Collector-emitter saturation voltage <sup>(1)</sup>	$V_{CE(sat)}$	$I_C = 5.0\text{A}, I_B = 1.0\text{A}$	-	-	5	V
Base-emitter saturation voltage <sup>(1)</sup>	$V_{BE(sat)}$	$I_C = 5.0\text{A}, I_B = 1.0\text{A}$	-	-	1.5	V
Forward voltage (damper diode) <sup>(1)</sup>	$-V_F$	$I_F = 6.0\text{A}$	-	-	2.0	V
Current gain – bandwidth product	$f_T$	$I_C = 0.1\text{A}, V_{CE} = 10\text{V}, f = 1\text{MHz}$	-	3	-	MHz
Collector output capacitance	$C_{ob}$	$I_E = 0, V_{CB} = 10\text{V}, f = 1\text{MHz}$	-	170	-	pF
Fall time	$t_f$	$I_C = 5\text{A}, I_{B1}(\text{end}) = 1.0\text{A}$	-	-	1.0	$\mu\text{s}$

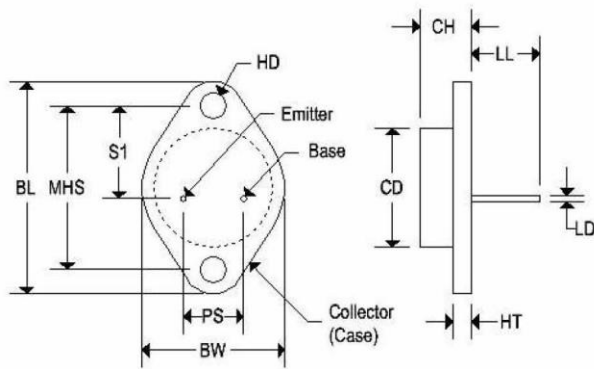
Note 1: Pulse test: Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2.0\%$ .

# 2SD871

SILICON NPN TRANSISTOR

## MECHANICAL CHARACTERISTICS

<b>Case:</b>	TO-3
<b>Marking:</b>	Alpha-Numeric
<b>Polarity:</b>	See below

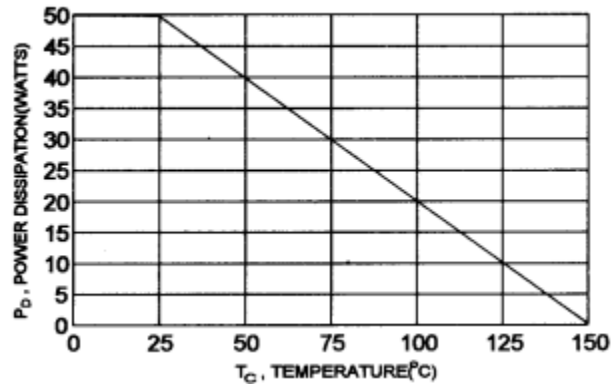


	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670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

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FIGURE -1 POWER DERATING



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