

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	2SD870	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	5.0	A
Base current	I_{EBO}	2.5	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	2SD870			Unit
			Min	Typ	Max	
Collector cutoff current	I_{CBO}	$V_{CB} = 500V, I_E = 0$	-	-	10	μA
Emitter-base voltage	V_{EBO}	$I_E = 200\text{mA}, I_C = 0$	5	-	-	V
DC current gain ⁽¹⁾	h_{FE}	$I_C = 1.0A, V_{CE} = 5V$	8	-	-	-
Collector-emitter saturation voltage ⁽¹⁾	$V_{CE(sat)}$	$I_C = 4.0A, I_B = 0.8A$	-	-	5	V
Base-emitter saturation voltage ⁽¹⁾	$V_{BE(sat)}$	$I_C = 4.0A, I_B = 0.8A$	-	-	1.5	V
Forward voltage (damper diode) ⁽¹⁾	$-V_F$	$I_F = 5.0A$	-	-	2.0	V
Current gain – bandwidth product	f_T	$I_C = 0.1A, V_{CE} = 10V, f = 1\text{MHz}$	-	3	-	MHz
Collector output capacitance	C_{ob}	$I_E = 0, V_{CB} = 10V, f = 1\text{MHz}$	-	170	-	pF
Fall time	t_f	$I_C = 4A, I_{B1}(\text{end}) = 0.8A$	-	-	1.0	μs

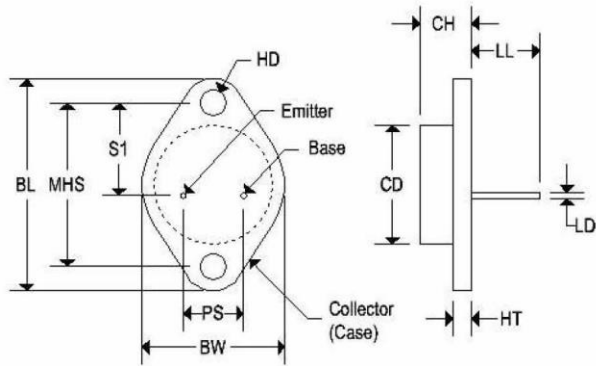
Note 1: Pulse test: Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2.0\%$.

MECHANICAL CHARACTERISTICS

Case:	TO-3
Marking:	Alpha-Numeric
Polarity:	See below

2SD870

SILICON NPN TRANSISTOR

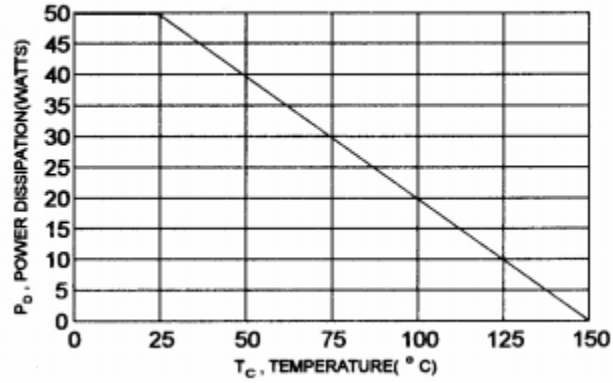


	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670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

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SILICON NPN TRANSISTOR

FIGURE -1 POWER DERATING



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