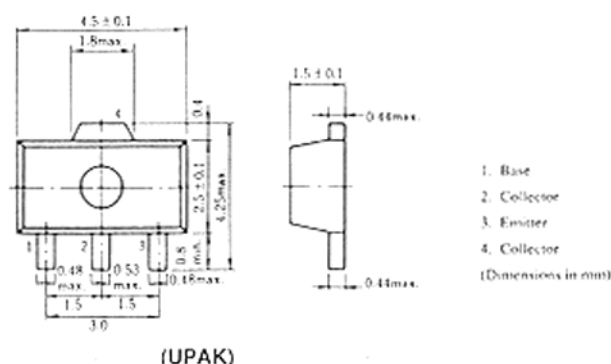


2SD1870

SILICON NPN EPITAXIAL
LOW FREQUENCY AMPLIFIER



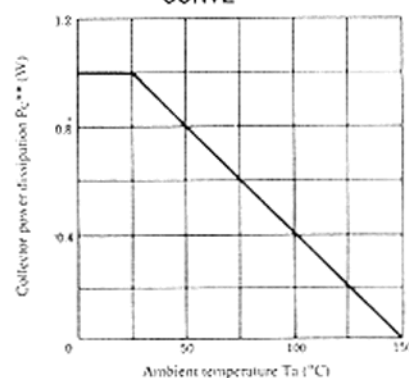
■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Item	Symbol	2SD1870	Unit
Collector to base voltage	V_{CBO}	30	V
Collector to emitter voltage	V_{CEO}	25	V
Emitter to base voltage	V_{EB0}	5	V
Collector current	I_C	1	A
Collector peak current	$i_{C(pk)}$ *	2	A
Collector power dissipation	P_C^{**}	1	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

* Pulse 500ms, Duty cycle 50%.

** When using the alumina ceramic board (12.5x20x0.7mm)

MAXIMUM COLLECTOR DISSIPATION CURVE



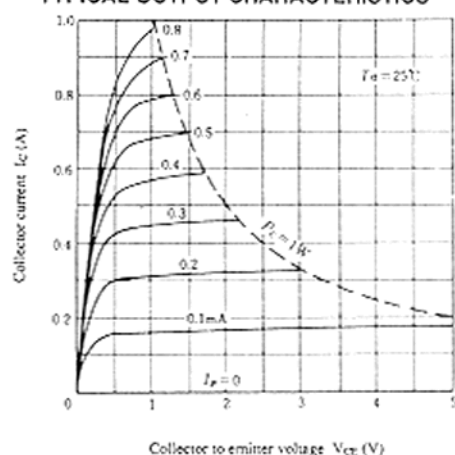
■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	30	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	25	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	5	—	—	V
Collector cutoff current	I_{CBO}	$V_{CB} = 25\text{V}, I_E = 0$	—	—	0.2	μA
	I_{CEO}	$V_{CE} = 20\text{V}, R_{BE} = \infty$	—	—	0.5	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	—	—	0.2	μA
DC current transfer ratio	h_{FE1}	$V_{CE} = 1\text{V}, I_C = 0.5\text{A}^*$	1000	—	3000	
	h_{FE2}	$V_{CE} = 1\text{V}, I_C = 1\text{A}^*$	500	—	—	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.5\text{A}, I_B = 1\text{mA}^*$	—	—	0.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.5\text{A}, I_B = 1\text{mA}^*$	—	—	1.2	V

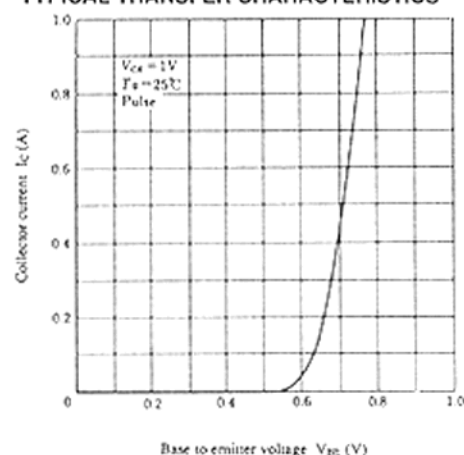
* Pulse Test

** Marking is [CS]

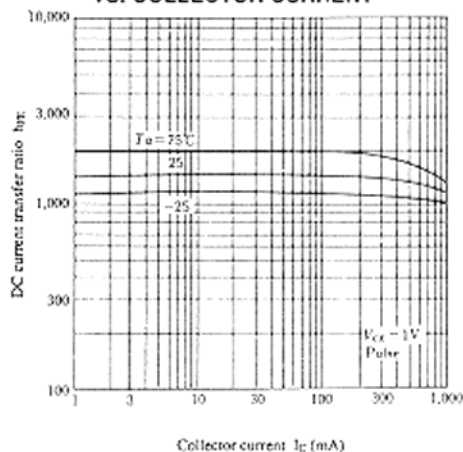
TYPICAL OUTPUT CHARACTERISTICS



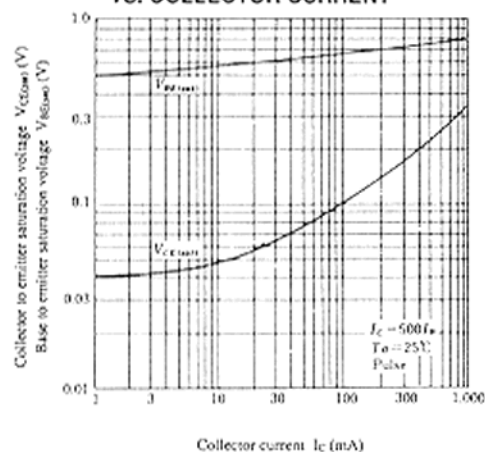
TYPICAL TRANSFER CHARACTERISTICS



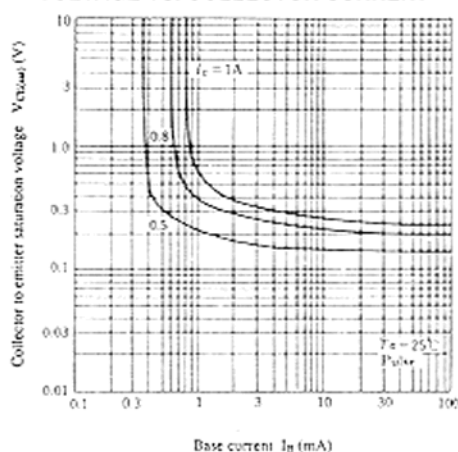
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



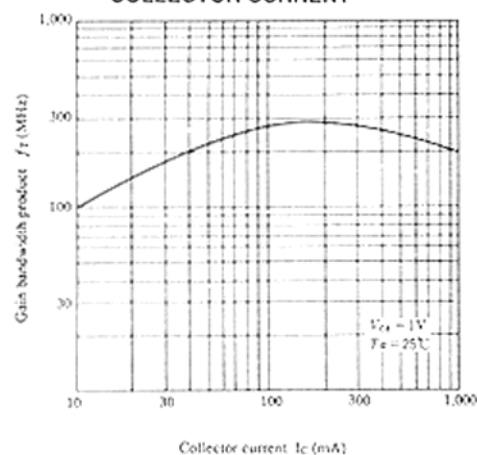
SATURATION VOLTAGE VS. COLLECTOR CURRENT



COLLECTOR TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



2SD1870

COLLECTOR OUTPUT CAPACITANCE VS.
COLLECTOR TO BASE VOLTAGE