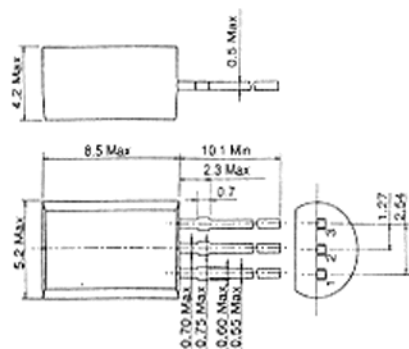


## 2SD1978

SILICON NPN EPITAXIAL

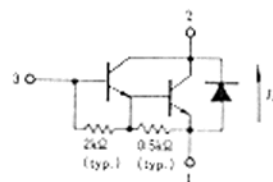
LOW FREQUENCY POWER AMPLIFIER

Complementary pair with 2SB1387



(JEDEC TO-92 MOD.)

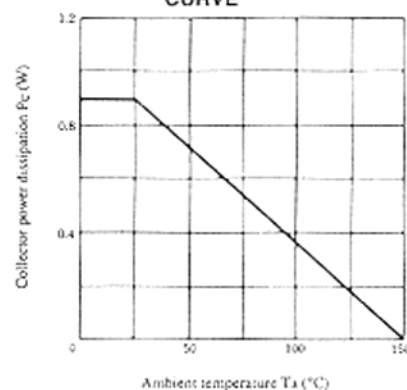
1. Emitter
  2. Collector
  3. Base
- (Dimensions in mm)



### ■ ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)

Item	Symbol	2SD1978	Unit
Collector to base voltage	V <sub>CB0</sub>	120	V
Collector to emitter voltage	V <sub>CE0</sub>	120	V
Emitter to base voltage	V <sub>EB0</sub>	7	V
Collector current	I <sub>C</sub>	1.5	A
Collector peak current	i <sub>C(peak)</sub>	3.0	A
Collector power dissipation	P <sub>C</sub>	0.9	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C
E to C diode forward current	I <sub>D</sub>	1.5	A

### MAXIMUM COLLECTOR DISSIPATION CURVE

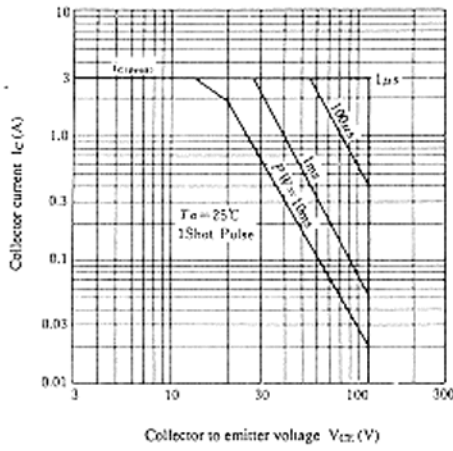


### ■ ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C)

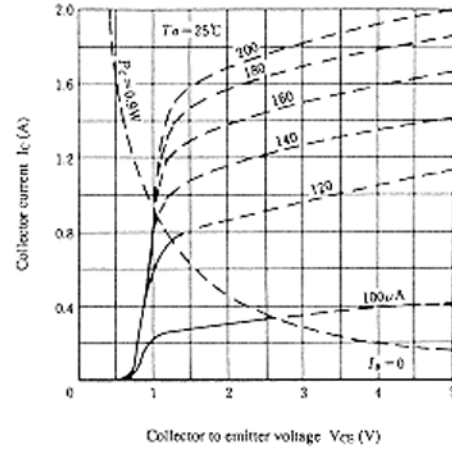
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = 0.1mA, I <sub>E</sub> = 0	120	—	—	V
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 10mA, R <sub>BE</sub> = ∞	120	—	—	V
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 50mA, I <sub>C</sub> = 0	7	—	—	V
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = 100V, I <sub>E</sub> = 0	—	—	1.0	μA
	I <sub>CEO</sub>	V <sub>CE</sub> = 100V, R <sub>BE</sub> = ∞	—	—	10	μA
DC current transfer ratio	h <sub>FE</sub>	V <sub>CE</sub> = 3V, I <sub>C</sub> = 1A*	2000	—	30000	
Collector to emitter saturation voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> = 1A, I <sub>B</sub> = 1mA*	—	—	1.5	V
	V <sub>CE(sat)2</sub>	I <sub>C</sub> = 1.5A, I <sub>B</sub> = 1.5mA*	—	—	2.0	V
Base to emitter saturation voltage	V <sub>BE(sat)1</sub>	I <sub>C</sub> = 1A, I <sub>B</sub> = 1mA*	—	—	2.0	V
	V <sub>BE(sat)2</sub>	I <sub>C</sub> = 1.5A, I <sub>B</sub> = 1.5mA*	—	—	2.5	V
E to C diode forward voltage	V <sub>D</sub>	I <sub>D</sub> = 1.5A*	—	—	3.0	V

\* Pulse Test

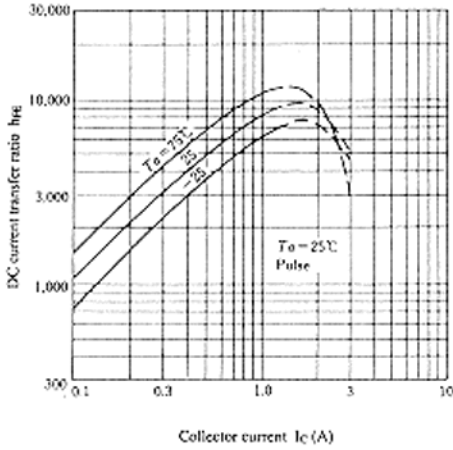
### AREA OF SAFE OPERATION



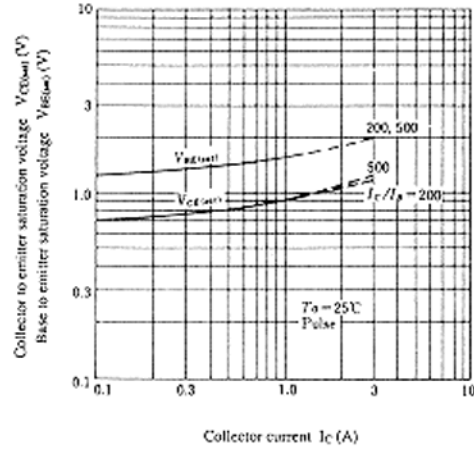
### TYPICAL OUTPUT CHARACTERISTICS



### DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



### SATURATION VOLTAGE VS. COLLECTOR CURRENT



### TRANSIENT THERMAL RESISTANCE

