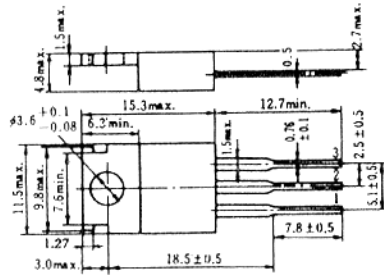


## 2SD1603, 2SD1604

SILICON NPN TRIPLE DIFFUSED

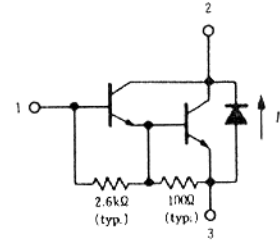
LOW FREQUENCY POWER AMPLIFIER

COMPLEMENTARY PAIR WITH 2SB1103 AND 2SB1104



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

(JEDEC TO-220 AB)

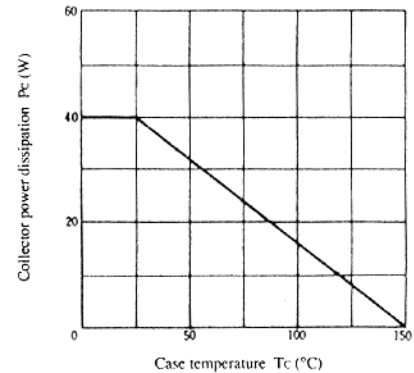


### ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SD1603	2SD1604	Unit
Collector to base voltage	V <sub>CB0</sub>	60	80	V
Collector to emitter voltage	V <sub>CE0</sub>	60	80	V
Emitter to base voltage	V <sub>EB0</sub>	7	7	V
Collector current	I <sub>C</sub>	8	8	A
Collector peak current	i <sub>C(peak)</sub>	12	12	A
Collector power dissipation	P <sub>C</sub> *	40	40	W
Junction temperature	T <sub>j</sub>	150	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	-55 to +150	°C
C to E diode forward current	I <sub>D</sub> *	8	8	A

\* Value at T<sub>C</sub> = 25°C.

### MAXIMUM COLLECTOR DISSIPATION CURVE

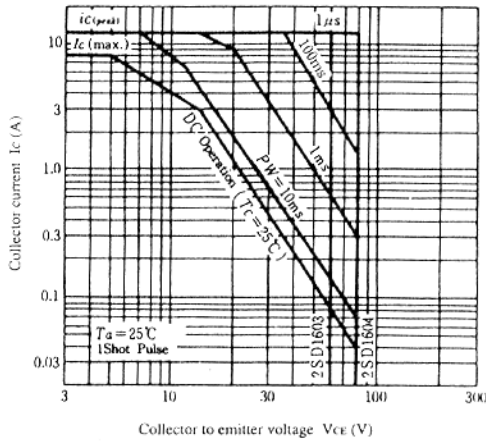


### ■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

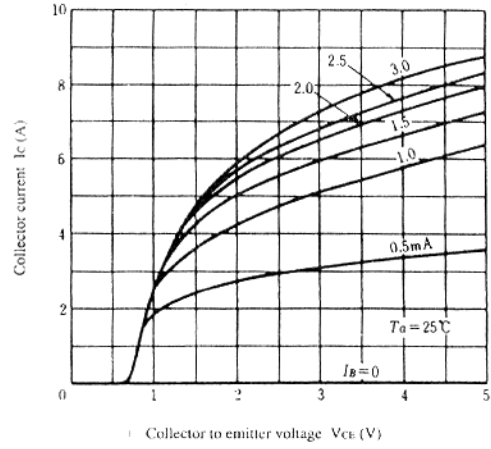
Item	Symbol	Test Condition	2SD1603			2SD1604			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 25mA, R <sub>BE</sub> = ∞	60	—	—	80	—	—	V
Emitter to base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 50mA, I <sub>C</sub> = 0	7	—	—	7	—	—	V
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> = 60V, I <sub>E</sub> = 0	—	—	100	—	—	100	μA
	I <sub>CEO</sub>	V <sub>CB</sub> = 50V, R <sub>BE</sub> = ∞	—	—	10	—	—	10	μA
DC current transfer ratio	h <sub>FE</sub>	V <sub>CE</sub> = 3V, I <sub>C</sub> = 4A*	1000	—	20000	1000	—	20000	
Collector to emitter saturation voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA*	—	—	1.5	—	—	1.5	V
	V <sub>CE(sat)2</sub>	I <sub>C</sub> = 8A, I <sub>B</sub> = 80mA*	—	—	3.0	—	—	3.0	V
Base to emitter saturation voltage	V <sub>BE(sat)1</sub>	I <sub>C</sub> = 4A, I <sub>B</sub> = 8mA*	—	—	2.0	—	—	2.0	V
	V <sub>BE(sat)2</sub>	I <sub>C</sub> = 8A, I <sub>B</sub> = 80mA*	—	—	3.5	—	—	3.5	V
C to E diode forward voltage	V <sub>D</sub>	I <sub>D</sub> = 8A*	—	—	3.0	—	—	3.0	V
Turn on	t <sub>on</sub>	I <sub>C</sub> = 4A, I <sub>B1</sub> = -I <sub>B2</sub> = 8mA	—	0.5	—	—	0.5	—	μs
Storage time	t <sub>stg</sub>		—	5.0	—	—	5.0	—	μs
Fall time	t <sub>f</sub>		—	1.0	—	—	1.0	—	μs

\* Pulse Test.

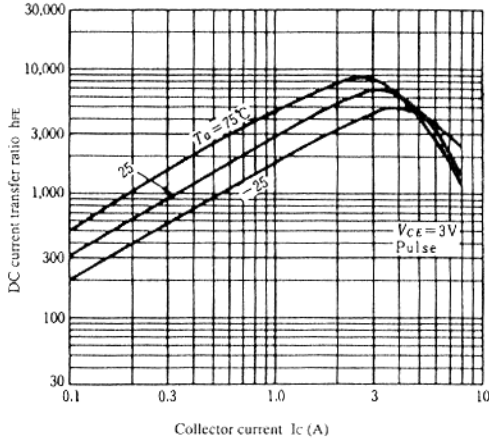
### AREA OF SAFE OPERATION



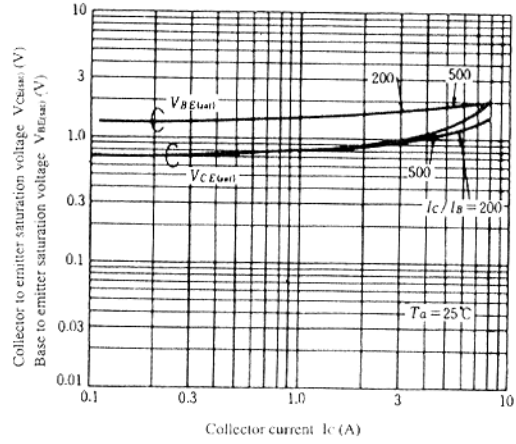
### TYPICAL OUTPUT CHARACTERISTICS



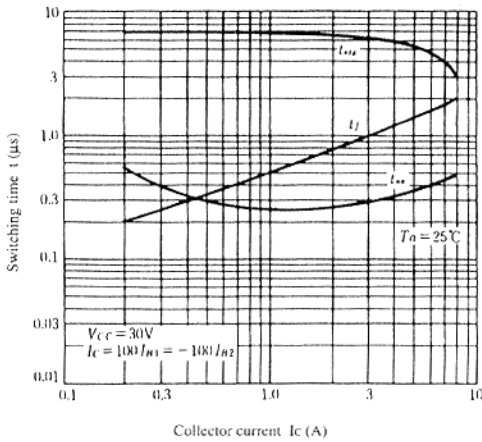
### DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



### SATURATION VOLTAGE VS. COLLECTOR CURRENT



### SWITCHING TIME VS. COLLECTOR CURRENT



### TRANSIENT THERMAL RESISTANCE

