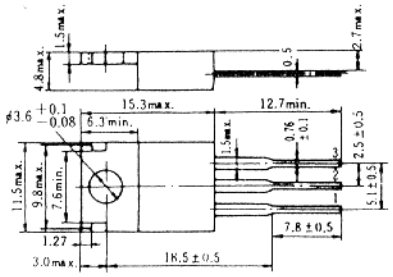
HITACHI

2SB1103, 2SB1104

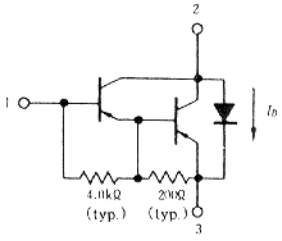
SILICON PNP TRIPLE DIFFUSED

LOW FREQUENCY POWER AMPLIFIER
COMPLEMENTARY PAIR WITH 2SD1603, 2SD1604



1. Base
2. Collector (Flange)
3. Emitter

(Dimensions in mm)



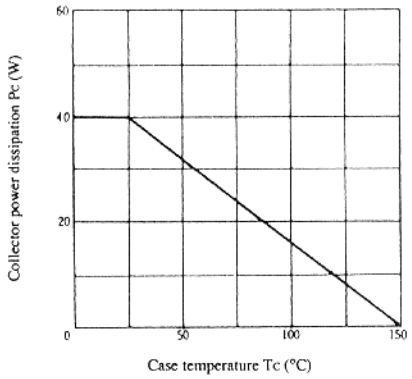
(JEDEC TO-220AB)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SB1103	2SB1104	Unit
Collector to emitter voltage	V_{CBO}	–60	–80	V
Collector to emitter voltage	V_{CEO}	–60	–80	V
Emitter to base voltage	V_{EBO}	–7	–7	V
Collector current	I_C	–8	–8	A
Collector peak current	$i_{C(peak)}$	–12	–12	A
Collector power dissipation	P_C*	40	40	W
Junction temperature	Tj	150	150	°C
Storage temperature	Tstg	–55 to +150	–55 to +150	°C
C to E diode forward current	I_D*	8	8	A

* Value at T_C = 25°C

MAXIMUM COLLECTOR DISSIPATION CURVE

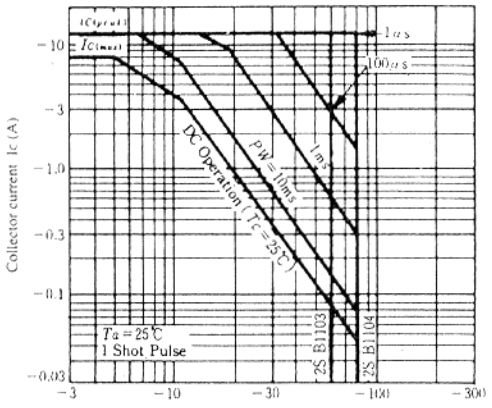


■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

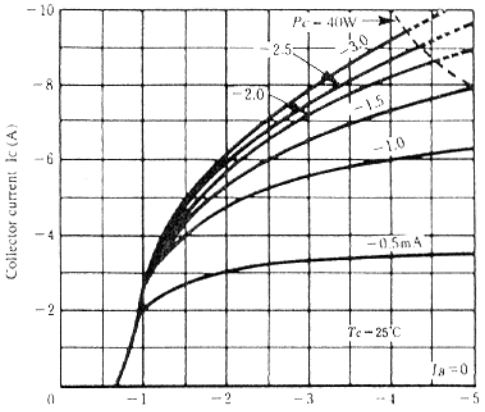
Item	Symbol	Test Condition	2SB1103			2SB1104			Unit
			min.	typ.	max.	min.	typ.	max.	
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = –25mA, R_{BE} = ∞	–60	—	—	–80	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = –50mA, I_C = 0	–7	—	—	–7	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = –60V, I_E = 0	—	—	–100	—	—	–100	μA
	I_{CEO}	V_{CE} = –50V, R_{BE} = ∞	—	—	–10	—	—	–10	μA
DC current transfer ratio	h_{FE}	V_{CE} = –3V, I_C = –4A*	1000	—	20000	1000	—	20000	
Collector to emitter saturation voltage	$V_{CE(sat)1}$	I_C = –4A, I_B = –8mA*	—	—	–1.5	—	—	–1.5	V
	$V_{CE(sat)2}$	I_C = –8A, I_B = –80mA*	—	—	–3.0	—	—	–3.0	
Base to emitter saturation voltage	$V_{BE(sat)1}$	I_C = –4A, I_B = –8mA*	—	—	–2.0	—	—	–2.0	V
	$V_{BE(sat)2}$	I_C = –8A, I_B = –80mA*	—	—	–3.5	—	—	–3.5	
C to E diode forward voltage	V_D	I_D = 8A*	—	—	3.0	—	—	3.0	V
Turn on time	ton	I_C = –4A, I_{B1} = $-I_{B2}$ = –8mA	—	0.5	—	—	0.5	—	μs
Storage time	tstg		—	3.0	—	—	3.0	—	
Fall time	tf		—	1.0	—	—	1.0	—	

* Pulse Test

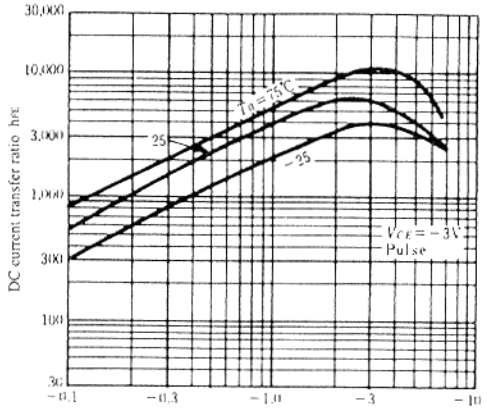
AREA OF SAFE OPERATION



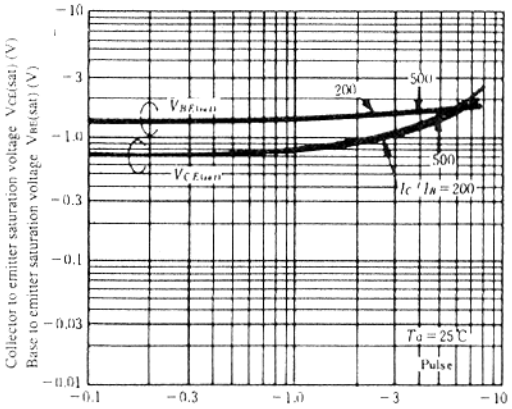
TYPICAL OUTPUT CHARACTERISTICS



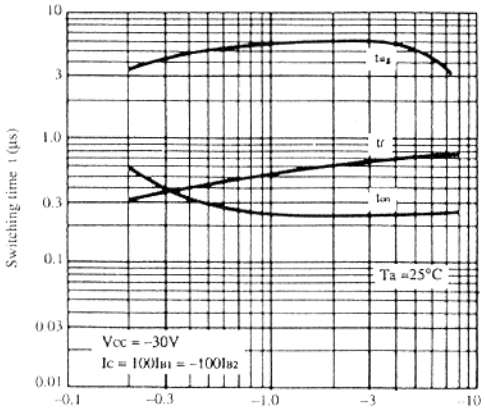
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



SATURATION VOLTAGE VS. COLLECTOR CURRENT



SWITCHING TIME VS. COLLECTOR CURRENT



TRANSIENT THERMAL RESISTANCE