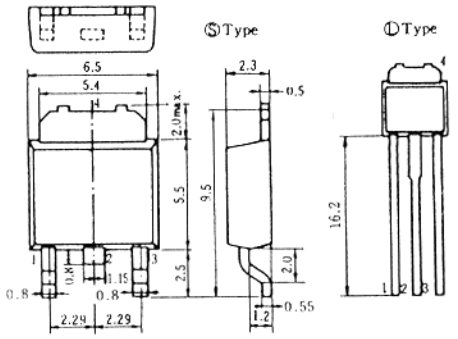
HITACHI

2SD1520Ⓛ, 2SD1520Ⓢ

SILICON NPN EPITAXIAL

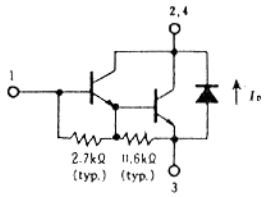
MEDIUM SPEED POWER AMPLIFIER



(DPAK)

1. Base
2. Collector
3. Emitter
4. Collector

(Dimensions in mm)

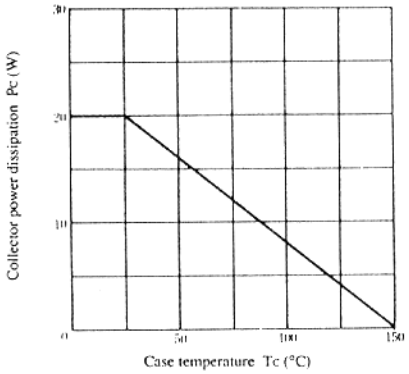


■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SD1520Ⓛ,2SD1520Ⓢ	Unit
Collector to base voltage	V_{CBO}	100	V
Collector to emitter voltage	V_{CEO}	80	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	4	A
Collector peak current	$i_{C(peak)}$	8	A
Collector power dissipation	P_C*	20	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C
C to E diode forward current	I_D*	4	A

* Value at T_C = 25°C

MAXIMUM COLLECTOR DISSIPATION CURVE

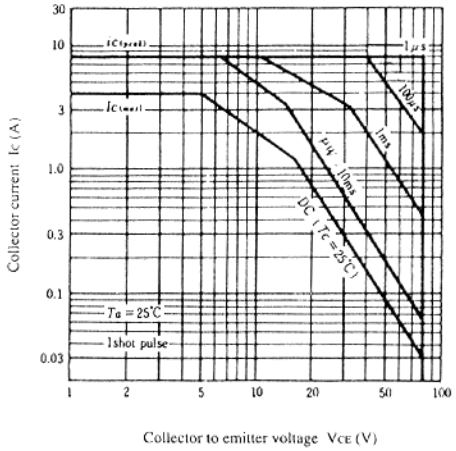


■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

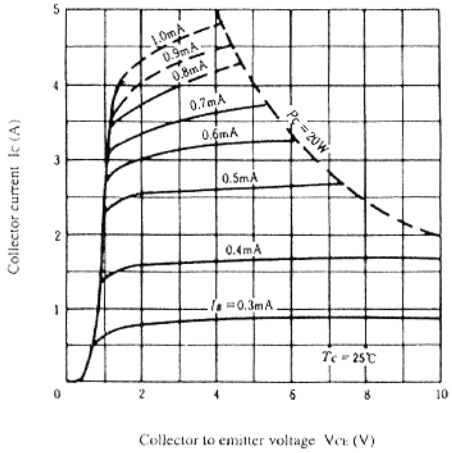
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 25mA, R_{BE} = ∞	80	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = 50mA, I_C = 0	7	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = 80V, I_E = 0	—	—	100	µA
	I_{CEO}	V_{CE} = 60V, R_{BE} = ∞	—	—	10	µA
DC current transfer ratio	h_{FE}	V_{CE} = 3V, I_C = 2A*	1000	—	20000	
Collector to emitter saturation voltage	$V_{CE(sat)1}$	I_C = 2A, I_B = 4mA*	—	—	1.5	V
	$V_{CE(sat)2}$	I_C = 4A, I_B = 40mA*	—	—	3.0	V
Base to emitter saturation voltage	$V_{BE(sat)1}$	I_C = 2A, I_B = 4mA*	—	—	2.0	V
	$V_{BE(sat)2}$	I_C = 4A, I_B = 40mA*	—	—	3.5	V
C to E diode forward voltage	V_D	I_D = 4A	—	—	3.0	V
Turn on time	t_{on}	I_C = 2A, I_{B1} = −I_{B2} = 4mA	—	0.5	—	µs
Storage time	t_{stg}		—	4.5	—	µs
Fall time	t_f		—	1.0	—	µs

* Pulse Test.

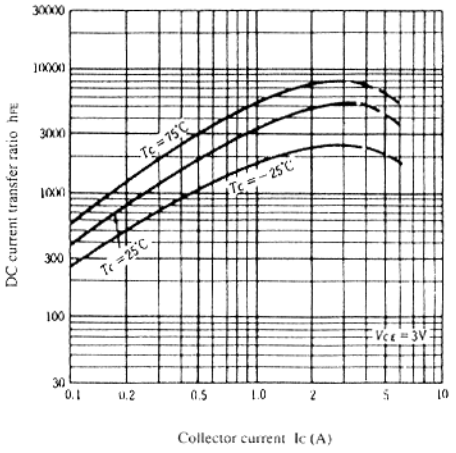
AREA OF SAFE OPERATION



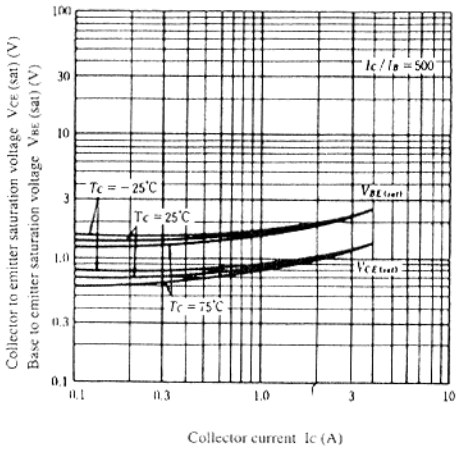
TYPICAL OUTPUT CHARACTERISTICS



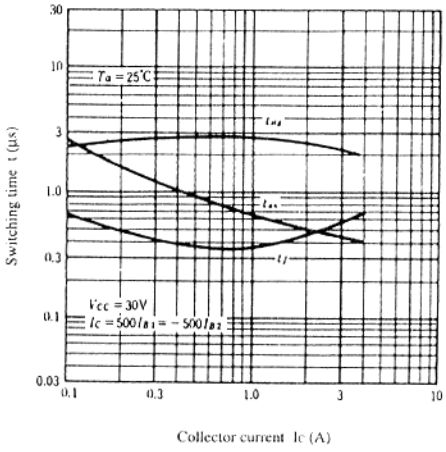
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



SATURATION VOLTAGE VS. COLLECTOR CURRENT



SWITCHING TIME VS. COLLECTOR CURRENT



TRANSIENT THERMAL RESISTANCE