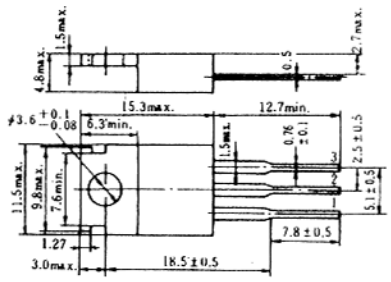
HITACHI

2SC2613

SILICON NPN TRIPLE DIFFUSED

HIGH VOLTAGE, HIGH SPEED AND HIGH POWER SWITCHING



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

(Dimensions in mm)

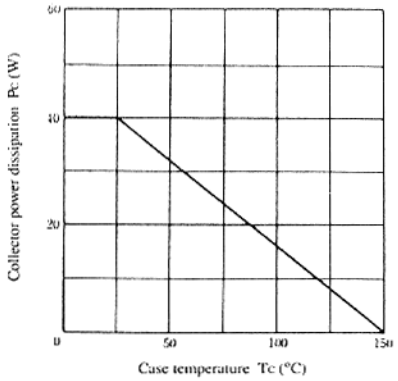
(JEDEC TO-220AB)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SC2613	Unit
Collector to base voltage	V_{CBO}	500	V
Collector to emitter voltage	V_{CEO}	400	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	5	A
Collector peak current	$i_{C(peak)}$	10	A
Base current	I_B	2.5	A
Collector power dissipation	P_C*	40	W
Junction temperature	Tj	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

* Value at Tc = 25°C

MAXIMUM COLLECTOR DISSIPATION CURVE



■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

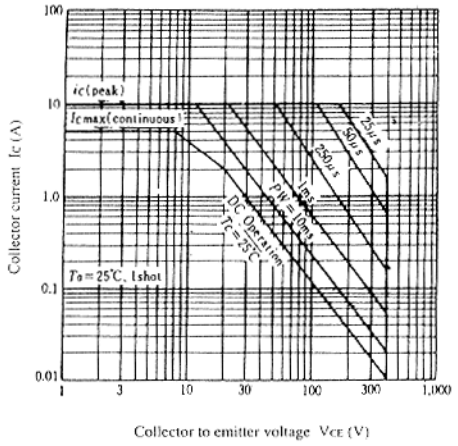
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to emitter sustain voltage	$V_{CEO(sus)}$	I_C = 0.2A, R_{BE} = ∞, L = 100mH	400	—	—	V
	$V_{CEX(sus)}$	I_C = 5A, I_{B1} = −I_{B2} = 1A V_{BE} = −5V, L = 180μH, Clamped	400	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = 10mA, I_C = 0	7	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = 400V, I_E = 0	—	—	100	μA
	I_{CEO}	V_{CE} = 350V, R_{BE} = ∞	—	—	100	μA
DC current transfer ratio	h_{FE1}	V_{CE} = 5V, I_C = 2.5A*	15	—	—	
	h_{FE2}	V_{CE} = 5V, I_C = 5A*	7	—	—	
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 2.5A, I_B = 0.5A*	—	—	1.0	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 2.5A, I_B = 0.5A*	—	—	1.5	V
Turn on time	t_{on}	I_C = 5A, I_{B1} = −I_{B2} = 1A, V_{CC} ≒ 150V	—	—	1.0	μs
Storage time	t_{stg}		—	1.2	2.5	μs
Fall time	t_f		—	—	1.0	μs

* Pulse Test

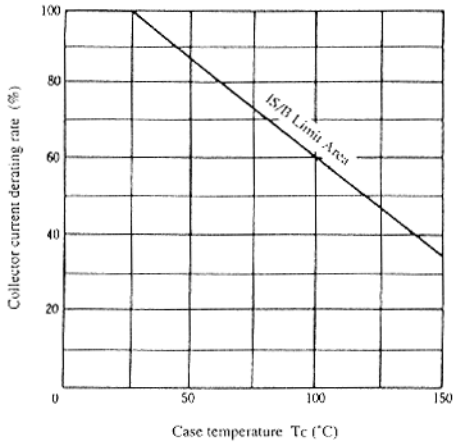
HITACHI

2SC2613

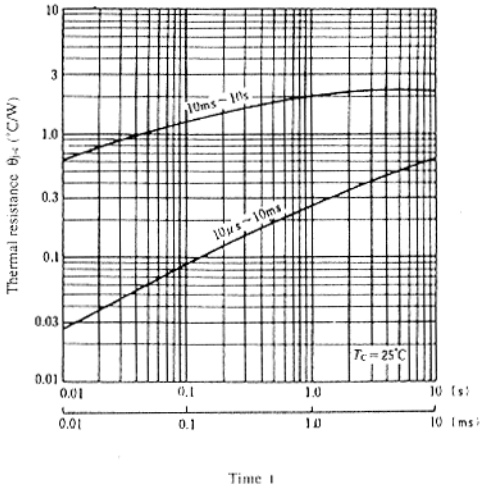
AREA OF SAFE OPERATION



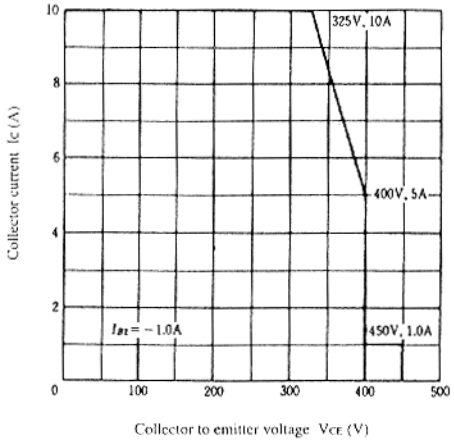
COLLECTOR CURRENT DERATING RATE



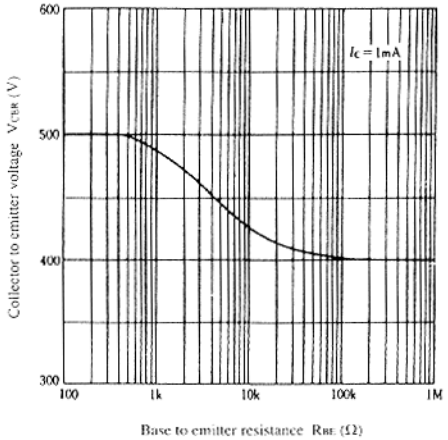
TRANSIENT THERMAL RESISTANCE



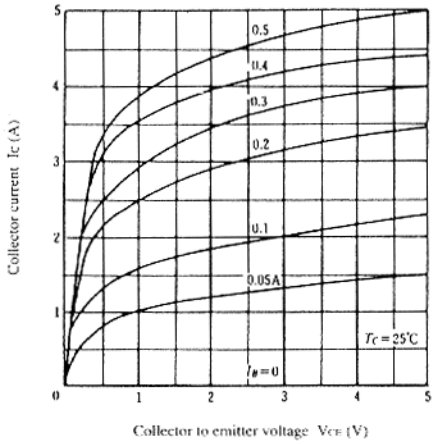
REVERSE BIAS AREA OF SAFE OPERATION



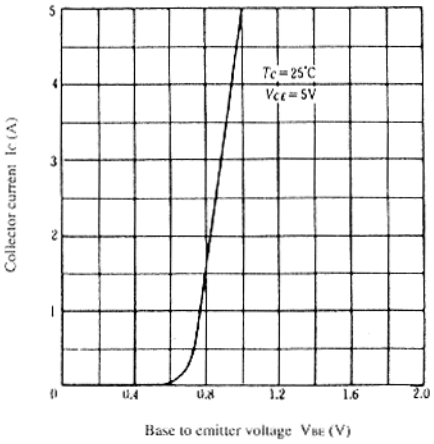
COLLECTOR TO EMITTER VOLTAGE VS. BASE TO EMITTER RESISTANCE



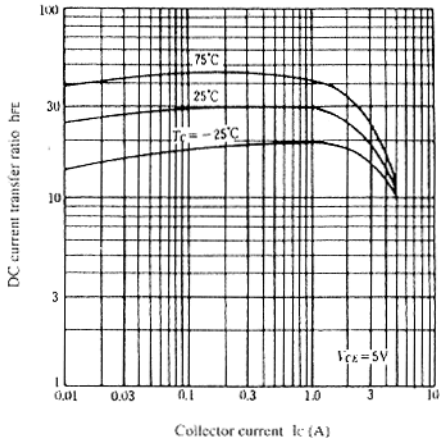
TYPICAL OUTPUT CHARACTERISTICS



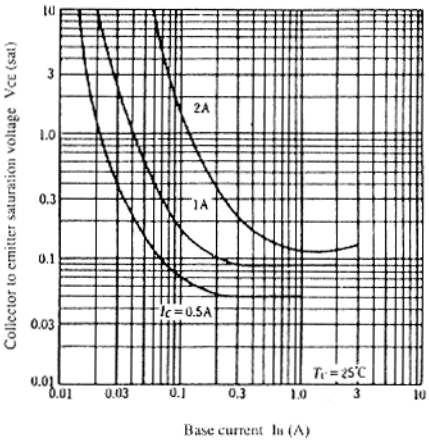
TYPICAL TRANSFER CHARACTERISTICS



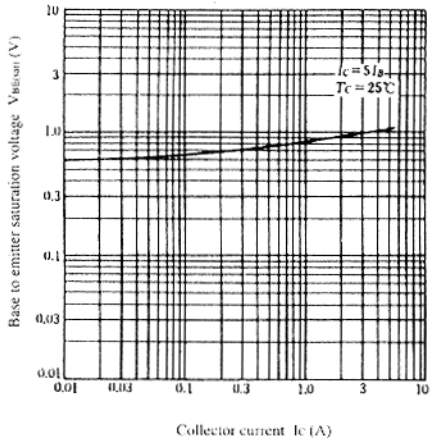
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



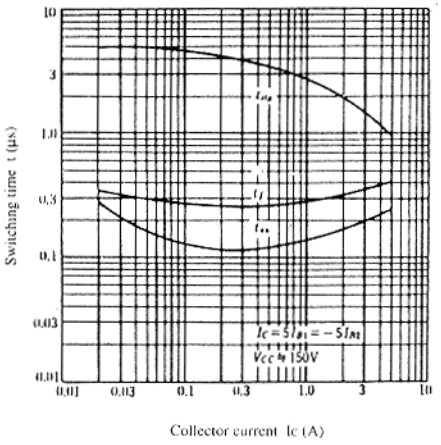
COLLECTOR TO EMITTER SATURATION VOLTAGE VS. BASE CURRENT



BASE TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT



SWITCHING TIME VS. COLLECTOR CURRENT



SWITCHING TIME VS. CASE TEMPERATURE