2SD2104

Silicon NPN Triple Diffused

HITACHI

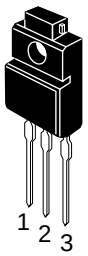
ADE-208-921 (Z)
1st. Edition
Sep. 2000

Application

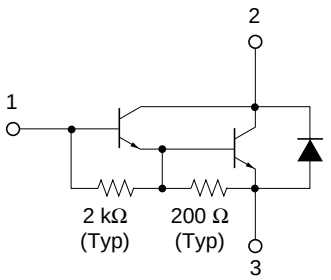
Low frequency power amplifier

Outline

TO-220FM



1. Base
2. Collector
3. Emitter



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Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	120	V
Collector to emitter voltage	V_{CEO}	120	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	I_C	8	A
Collector peak current	$I_{C(peak)}$	12	A
Collector power dissipation	P_C	2	W
	P_C*[1]	25	
Junction temperature	Tj	150	°C
Storage temperature	Tstg	–55 to +150	°C

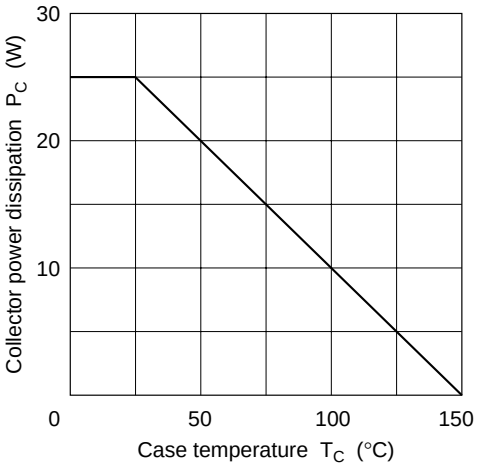
Note: 1. Value at T_C = 25°C.

Electrical Characteristics (Ta = 25°C)

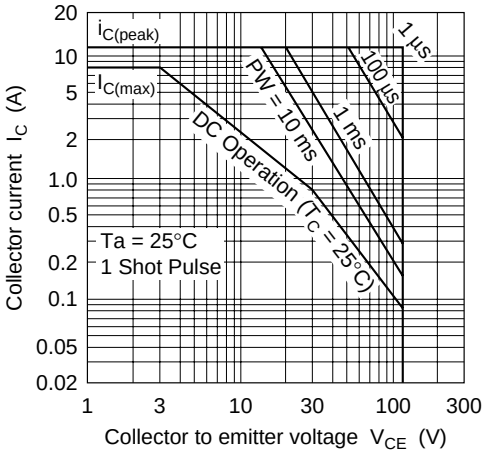
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	120	—	—	V	I_C = 0.1 mA, I_E = 0
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	120	—	—	V	I_C = 25 mA, R_{BE} = ∞
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	I_E = 50 mA, I_C = 0
Collector cutoff current	I_{CBO}	—	—	10	µA	V_{CB} = 100 V, I_E = 0
	I_{CEO}	—	—	10		V_{CE} = 100 V, R_{BE} = ∞
DC current transfer ratio	h_{FE}	1000	—	20000		V_{CE} = 3 V, I_C = 4 A*[1]
Collector to emitter saturation	$V_{CE(sat)1}$	—	—	1.5	V	I_C = 4 A, I_B = 8 mA*[1]
voltage	$V_{CE(sat)2}$	—	—	3.0		I_C = 8 A, I_B = 80 mA*[1]
Base to emitter saturation	$V_{BE(sat)1}$	—	—	2.0	V	I_C = 4 A, I_B = 8 mA*[1]
voltage	$V_{BE(sat)2}$	—	—	3.5		I_C = 8 A, I_B = 80 mA*[1]

Note: 1. Pulse test.

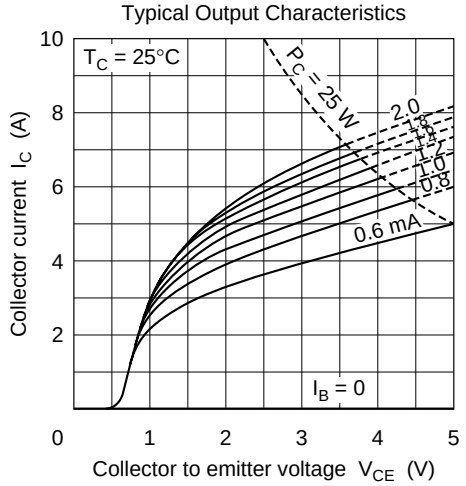
Maximum Collector Dissipation Curve



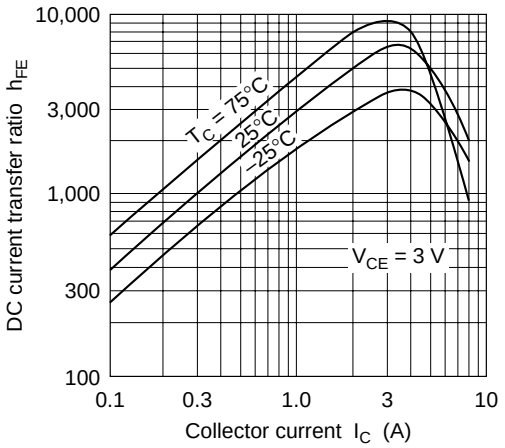
Area of Safe Operation



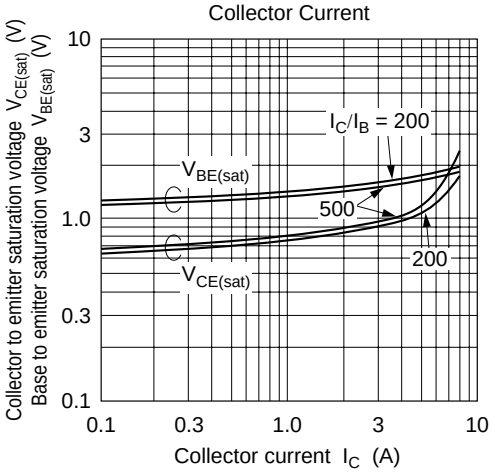
Typical Output Characteristics



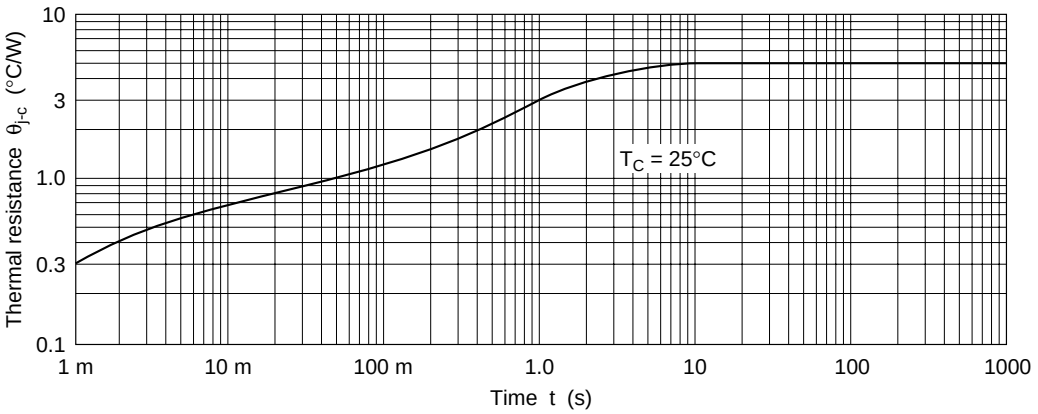
DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs.
Collector Current

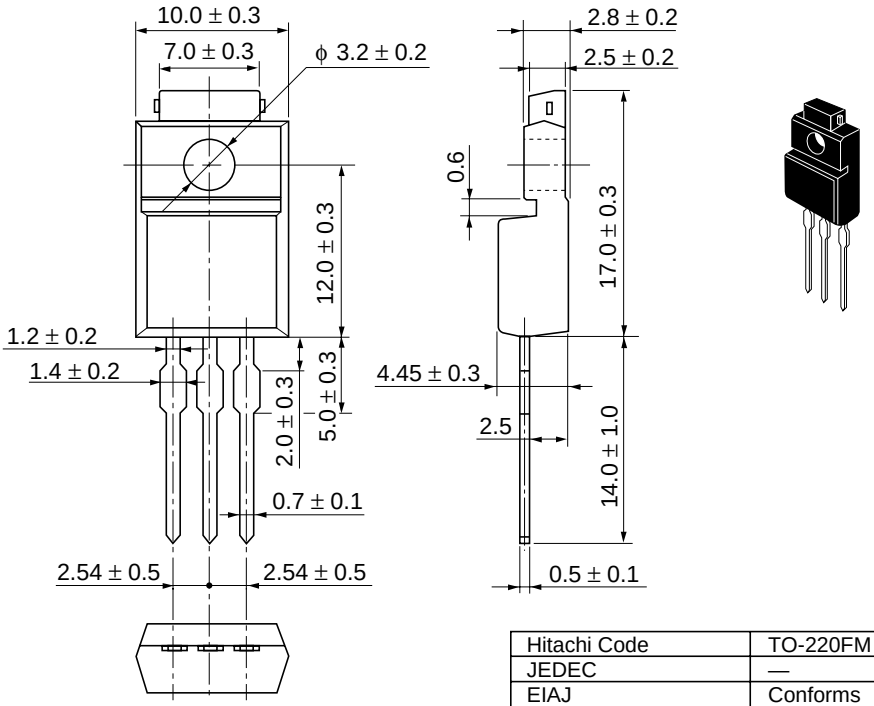


Transient Thermal Resistance



Package Dimensions

Unit: mm



Hitachi Code	TO-220FM
JEDEC	—
EIAJ	Conforms
Mass (reference value)	1.8 g

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