HITACHI

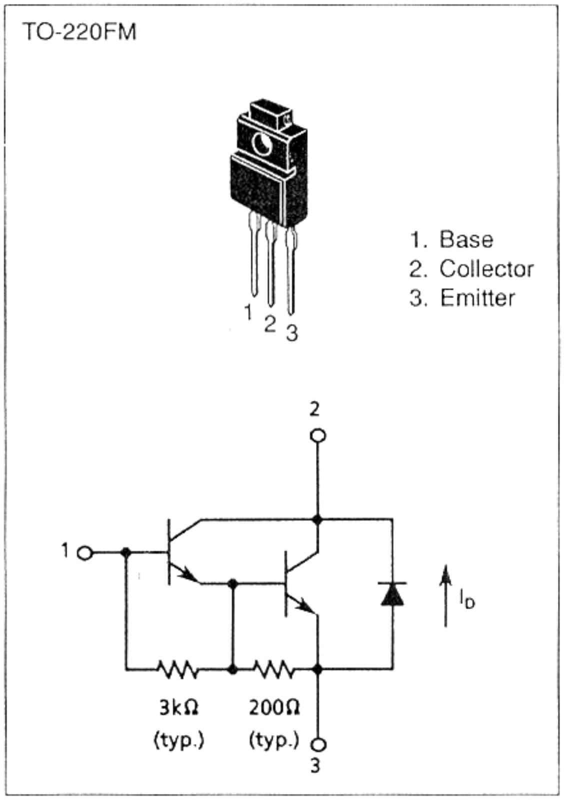
2SD2106

Silicon NPN Epitaxial
Low Frequency Power Amplifier

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	6	A
Collector peak current	$i_{C(peak)}$	10	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 condition
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 = 3 A[*1]
Collector to emitter saturation voltage	$V_{CE(sat)1}$	—	—	1.5	V	I_C = 3 A, I_B = 6 mA[*1]
	$V_{CE(sat)2}$	—	—	3.0		I_C = 6 A, I_B = 60 mA[*1]

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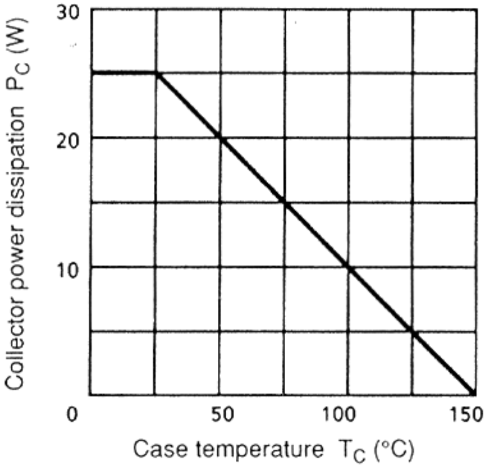
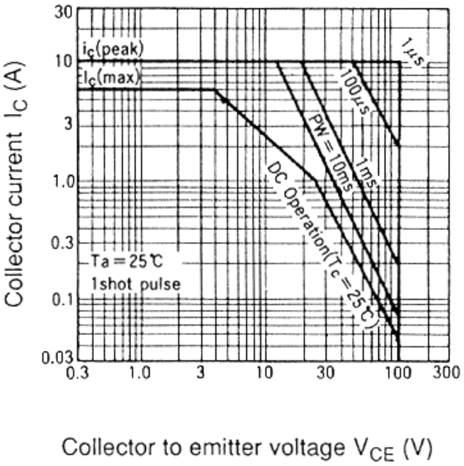
Electrical Characteristics (Ta = 25°C) (cont)

Item	Symbol	Min	Typ	Max	Unit	Test condition
Base to emitter saturation voltage	$V_{BE(sat)1}$	—	—	2.0	V	I_C = 3 A, I_B = 6 mA*1
	$V_{BE(sat)2}$	—	—	3.5		I_C = 6 A, I_B = 60 mA*1

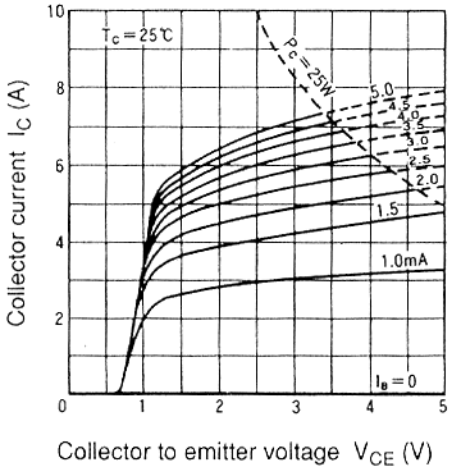
Note: 1. Pulse Test.

See switching characteristic curve of 2SD768Ⓚ.

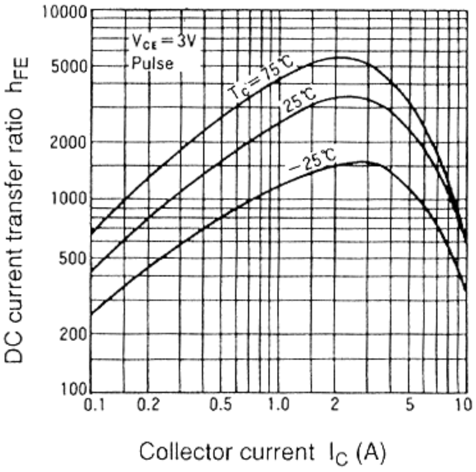

Maximum Collector Dissipation Curve


Area of Safe Operation

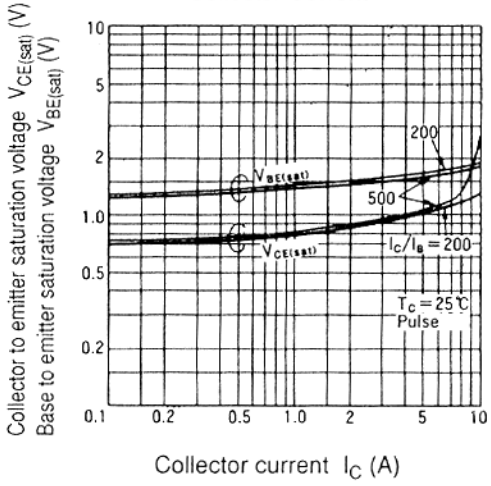
Typical Output Characteristics



DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current



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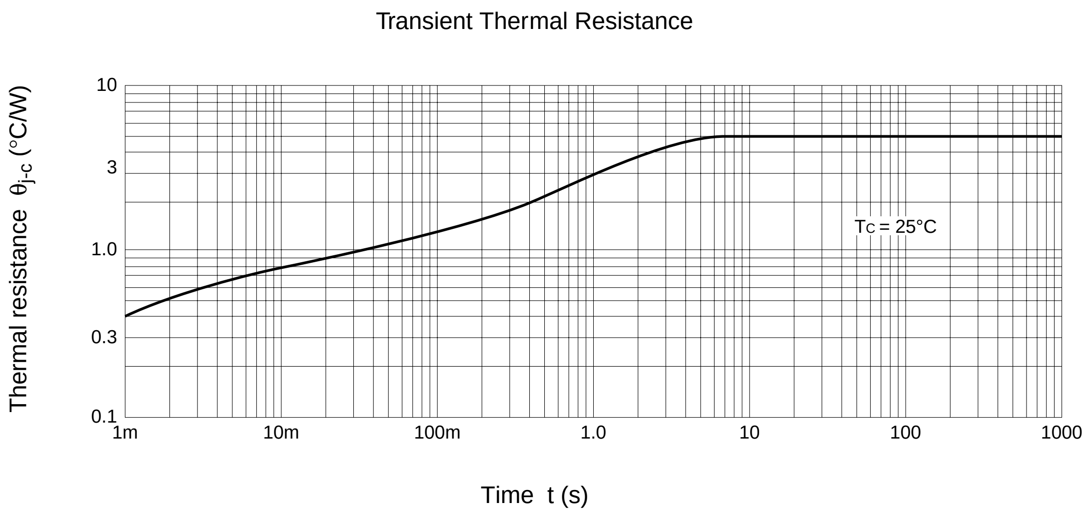
Transient Thermal Resistance
Thermal resistance θj-c (°C/W)
10
3
1.0
0.3
0.1
1m
10m
100m
1.0
10
100
1000
Time t (s)
Tc = 25°C