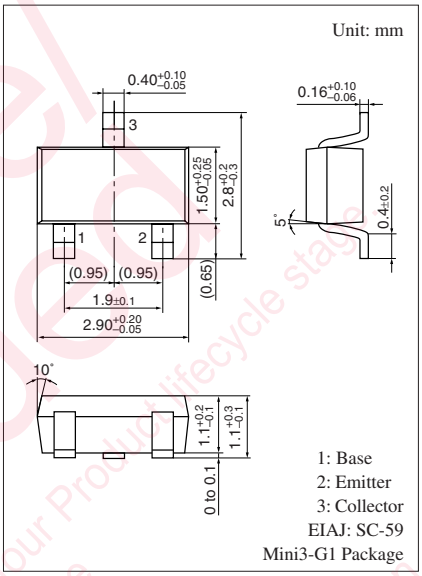
2SC3829

Silicon NPN epitaxial planar type

For UHF band low-noise amplification



Marking Symbol: 3M

■ Features

- Low noise figure NF
- High gain
- High forward transfer gain $|S_{21e}|^2$
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing

■ Absolute Maximum Ratings $T_a = 25°C$

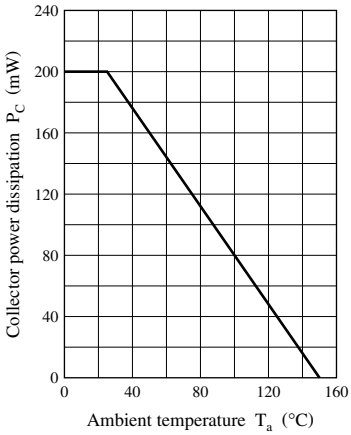
Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	15	V
Collector-emitter voltage (Base open)	V_{CEO}	10	V
Emitter-base voltage (Collector open)	V_{EBO}	2	V
Collector current	I_C	80	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

■ Electrical Characteristics $T_a = 25°C \pm 3°C$

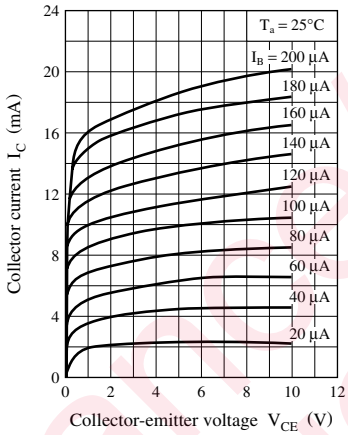
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	I_C = 10 µA, I_E = 0	15			V
Collector-emitter voltage (Base open)	V_{CEO}	I_C = 100 µA, I_B = 0	10			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = 10 V, I_E = 0			1	µA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = 2 V, I_C = 0			1	µA
Forward current transfer ratio	h_{FE}	V_{CE} = 8 V, I_C = 20 mA	50	150	300	—
Transition frequency	f_T	V_{CE} = 8 V, I_C = 20 mA, f = 0.8 GHz	5	6		GHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz		0.7	1.2	pF
Forward transfer gain	$\|S_{21e}\|^2$	V_{CE} = 8 V, I_C = 20 mA, f = 0.8 GHz	10.0	13.5		dB
Maximum unilateral power gain	G_{UM}	V_{CE} = 8 V, I_C = 20 mA, f = 0.8 GHz		15		dB
Noise figure	NF	V_{CE} = 8 V, I_C = 20 mA, f = 0.8 GHz			2	dB

Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

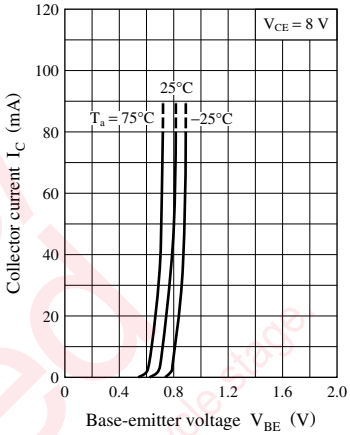
P_C — T_a



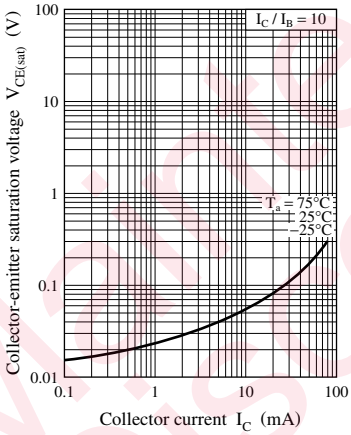
I_C — V_{CE}



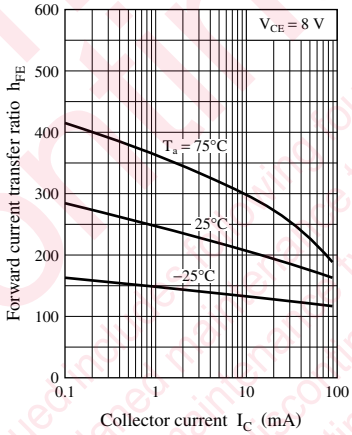
I_C — V_{BE}



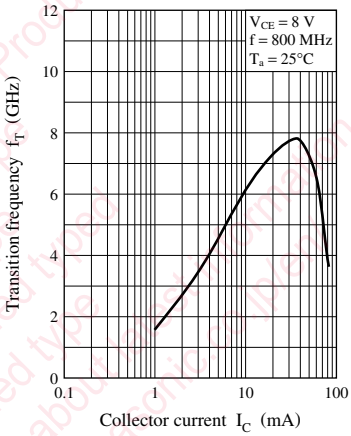
$V_{CE(sat)}$ — I_C



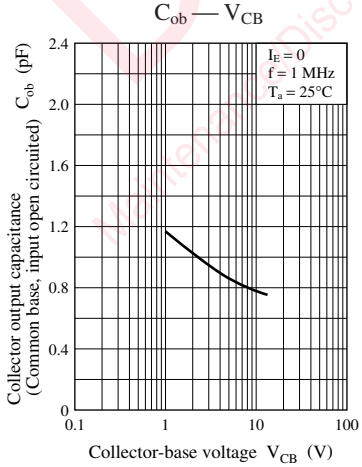
h_{FE} — I_C



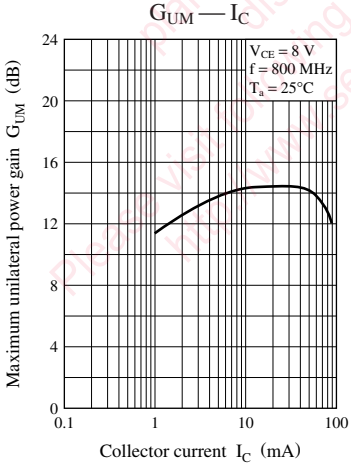
f_T — I_C



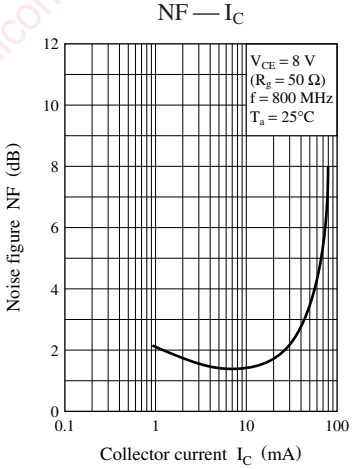
C_{ob} — V_{CB}



G_{UM} — I_C



NF — I_C



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