Ordering number:ENN3482

TR:NPN Epitaxial Plannar Silicon Transistor
FET:N-Channel Junction Silicon Transistor

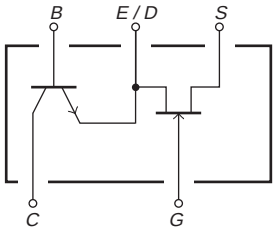
FC12

High-Frequency Amp, AM Applications, Low-Frequency Amp

Features

- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC12 is formed with two chips, being equivalent to the 2SC4639, placed in one package.
- Common drain and emitter.

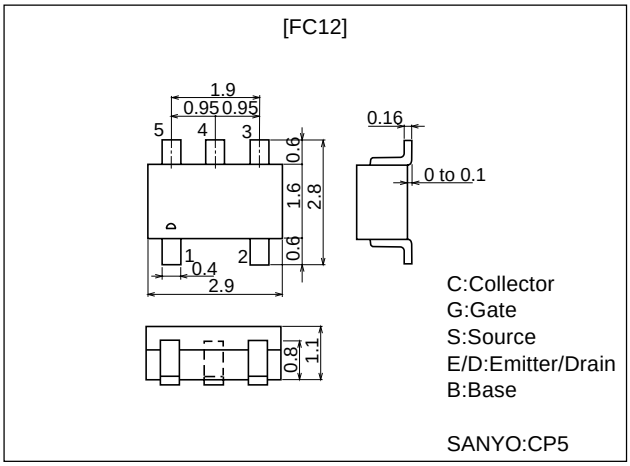
Electrical Connection



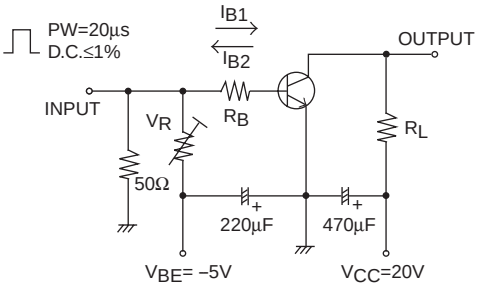
Package Dimensions

unit:mm

2075



Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 10mA$

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
[FET]				
Drain-to-Source Voltage	V_{DSX}		15	V
Gate-to-Drain Voltage	V_{GDS}		–15	V
Gate Current	I_G		10	mA
Drain Current	I_D		50	mA
Allowable Power Dissipation	P_D		200	mW
[TR]				
Collector-to-Base Voltage	V_{CBO}		55	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		150	mA
Collector Current (Pulse)	I_{CP}		300	mA
Base Current	I_B		30	mA
Collector Dissipation	P_C		200	mW
[Common Ratings]				
Total Dissipation	PT		300	mW
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Marking:12

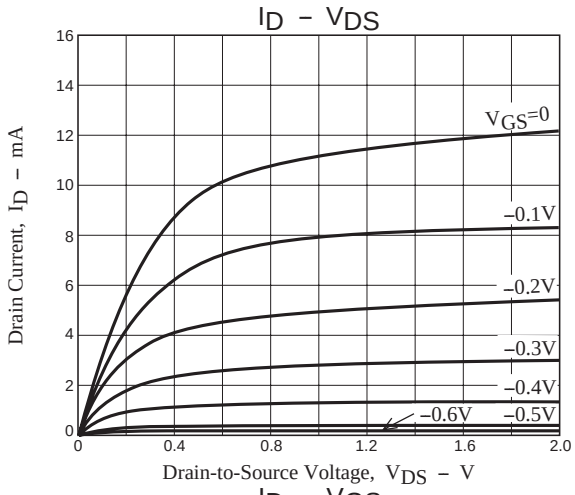
Electrical Characterisitics at Ta = 25˚C

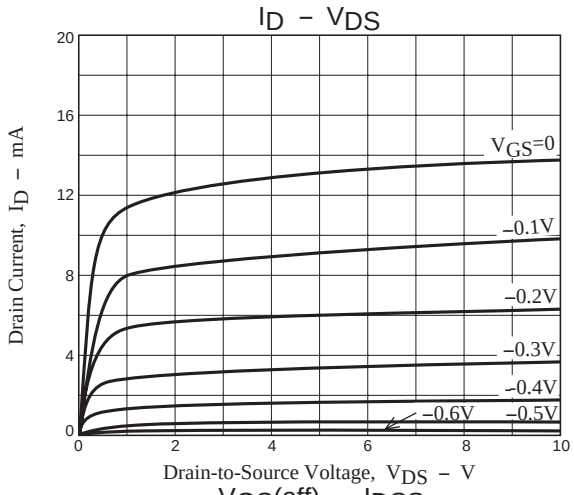
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FET]						
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	I_G=–10μA, V_{DS}=0	–15			V
Gate-to-Cutoff Current	I_{GSS}	V_{GS}=–10V, V_{DS}=0			–1.0	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=5V, I_D=100μA	–0.2	–0.6	–1.4	V
Drain Current	I_{DSS}	V_{DS}=5V, V_{GS}=0	6.0*		20.0*	mA
Forward Transfer Admittance	$\lvert Y_{fs} \rvert$	V_{DS}=5V, V_{GS}=0, f=1kHz	25	50		mS
Input Capacitance	Ciss	V_{DS}=5V, V_{GS}=0, f=1MHz		10		pF
Reverse Transfer Capacitance	Crss	V_{DS}=5V, V_{GS}=0, f=1MHz		3.0		pF
Noise Figure	NF	V_{DS}=5V, Rg=1kΩ, I_D=1mA, f=1kHz		1.5		dB
[TR]						
Collector Cuttoff Current	I_{CBO}	V_{CB}=35V, I_E=0			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			0.1	μA
DC Current Gain	h_{FE}	V_{CE}=6V, I_C=1mA	135		400	
Gain-Bandwidth Product	f_T	V_{CE}=6V, I_C=10mA		200		MHz
Output Capacitance	Cob	V_{CB}=6V, f=1MHz		1.7		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=50mA, I_B=5mA		0.08	0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=50mA, I_B=5mA		0.8	1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0	55			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6			V
Turn-ON Time	t_{on}	See specified Test Circuit		0.15		μs
Storage Time	t_{stg}	See specified Test Circuit		0.75		μs
Fall Time	t_f	See specified Test Circuit		0.20		μs

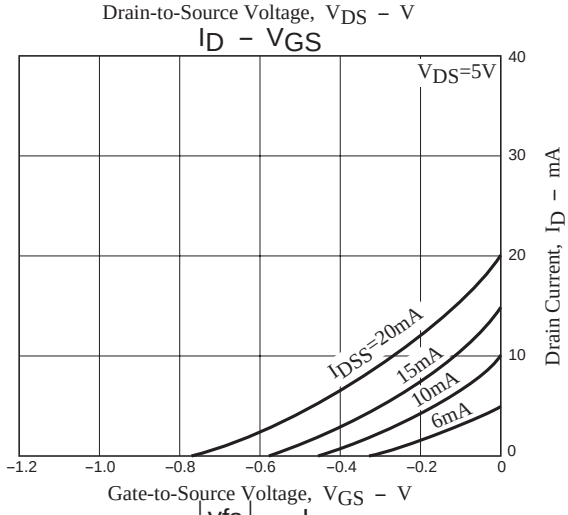
Note*:The FC12 is classified by I_{DSS} as follows : (unit:mA).

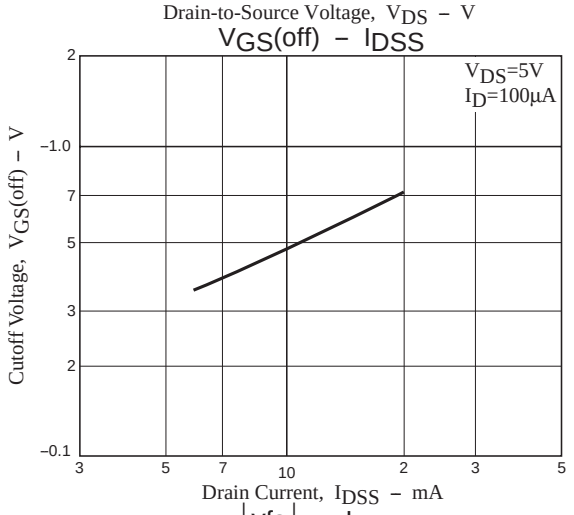
6.0 F 12.0	10.0 G 20.0

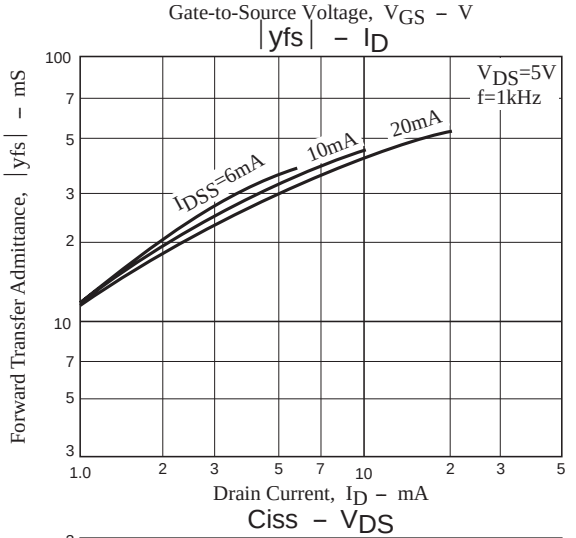
Primany Characteristics of FET

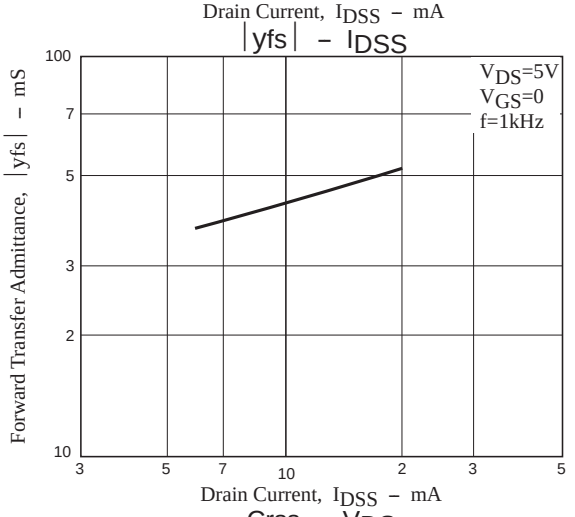


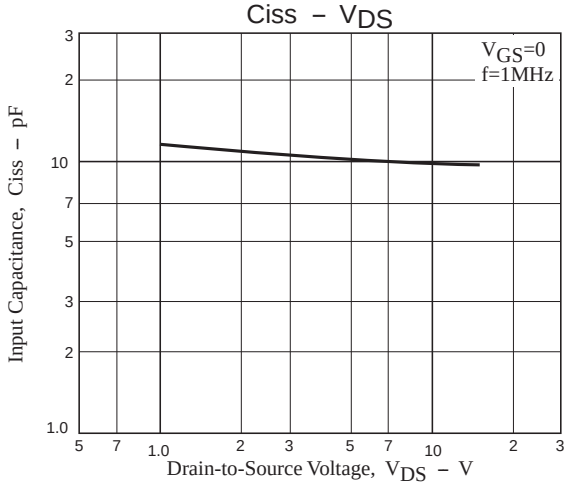


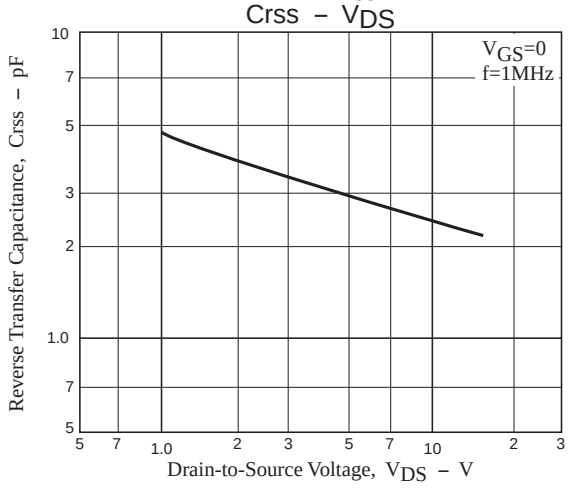


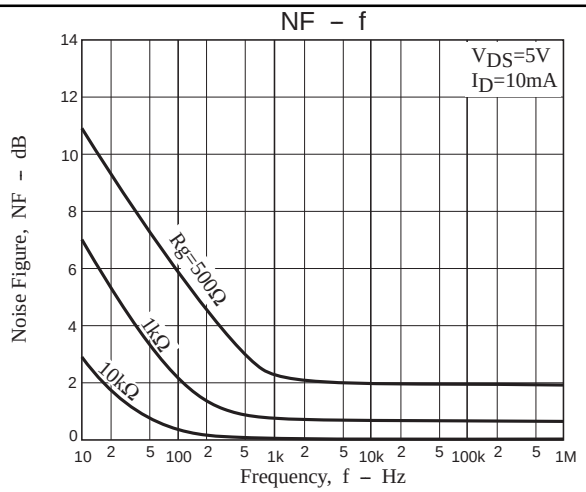


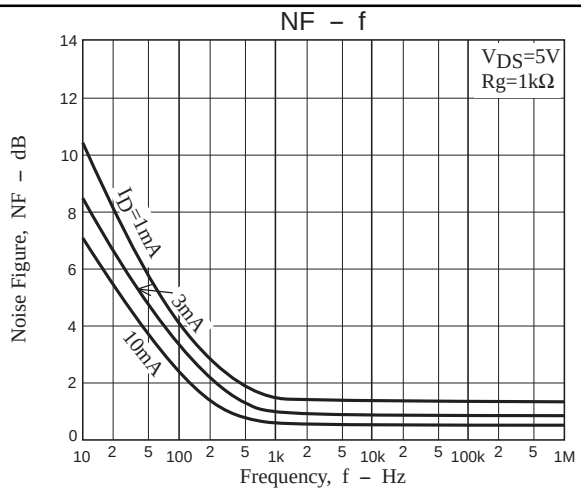


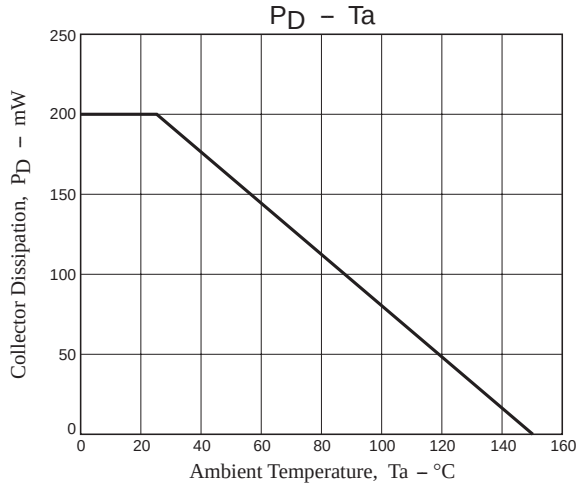




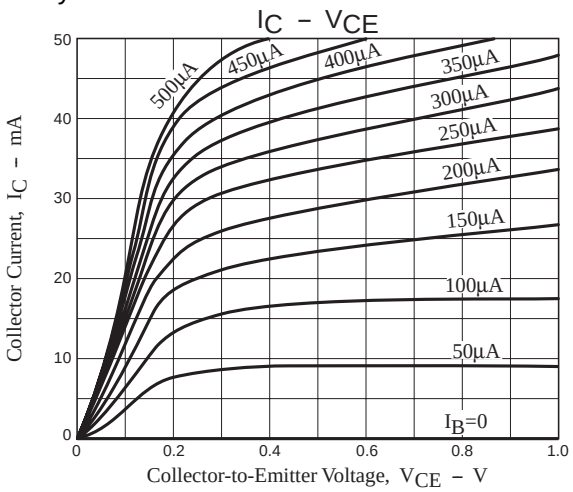


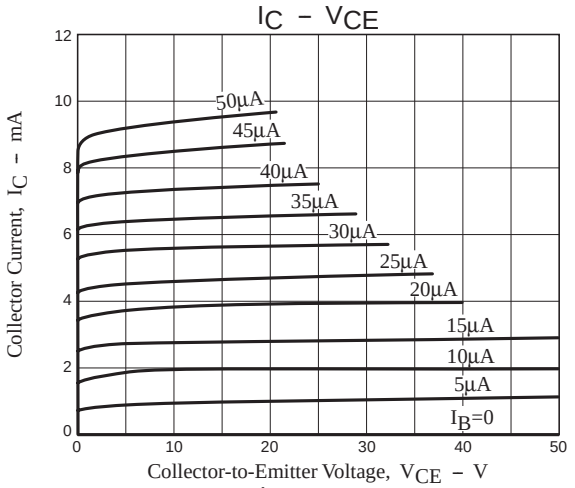


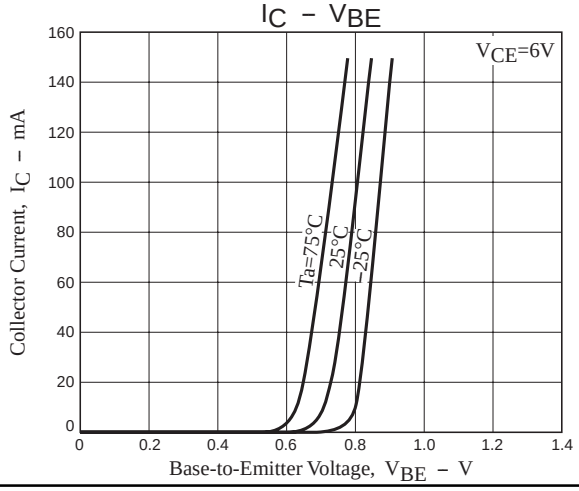


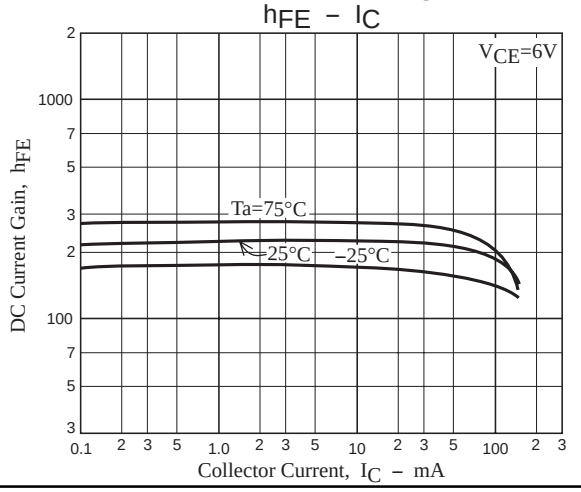


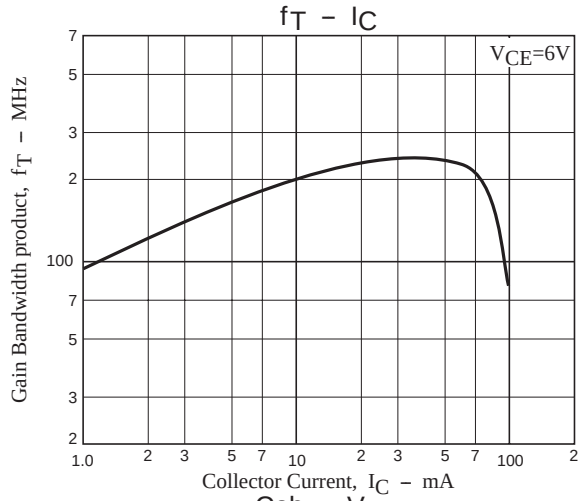
Primany Characteristic of TR

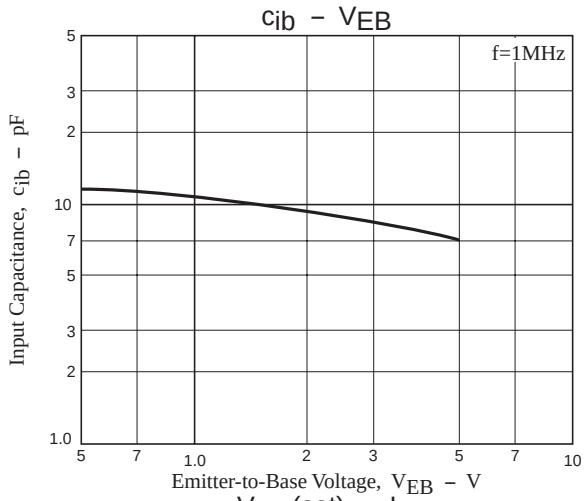


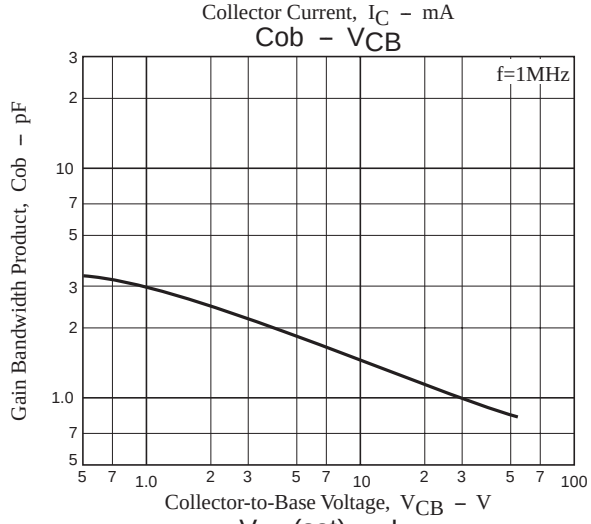


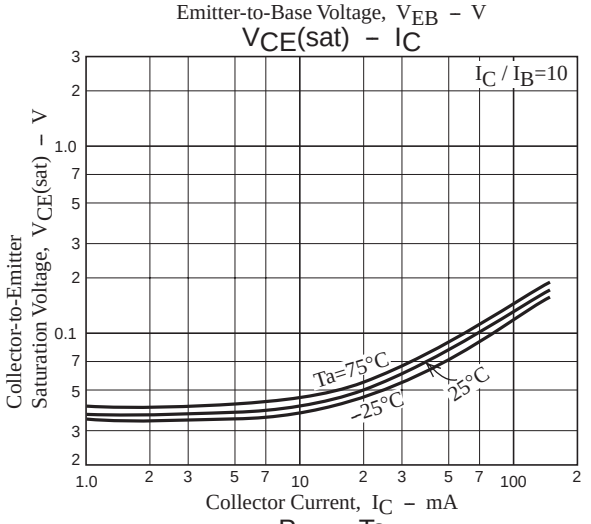


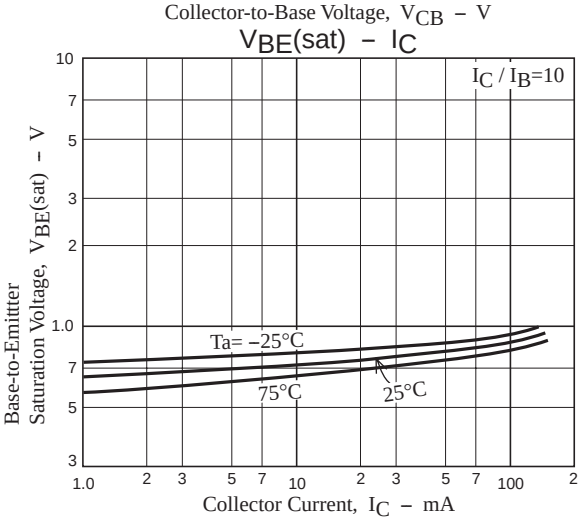


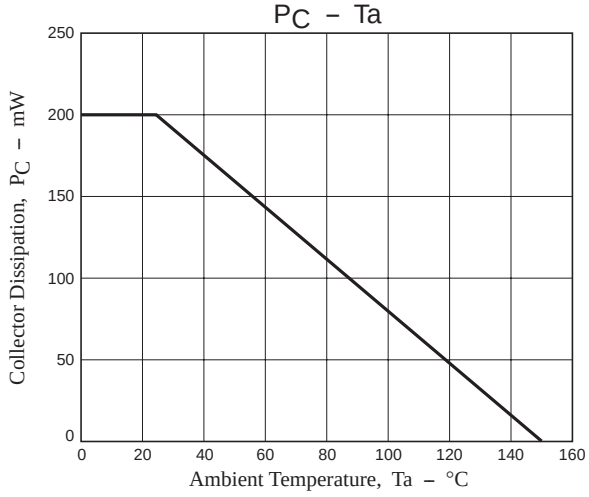

fT – IC
VCE=6V
Gain Bandwidth product, fT – MHz
Collector Current, IC – mA


cib – VEB
f=1MHz
Input Capacitance, cib – pF
Emitter-to-Base Voltage, VEB – V


Cob – VCB
f=1MHz
Gain Bandwidth Product, Cob – pF
Collector-to-Base Voltage, VCB – V


VCE(sat) – IC
IC / IB=10
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Ta=75°C
25°C
–25°C
Collector Current, IC – mA


VBE(sat) – IC
IC / IB=10
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Ta= –25°C
75°C
25°C
Collector Current, IC – mA


PC – Ta
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C