



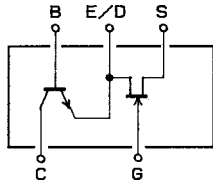
FC12

TR:NPN Epitaxial Planar Silicon Transistor
 FET:N-Channel Junction Silicon Transistor
**High-Frequency Amp, AM Applications,
 Low-Frequency Amp**

Features

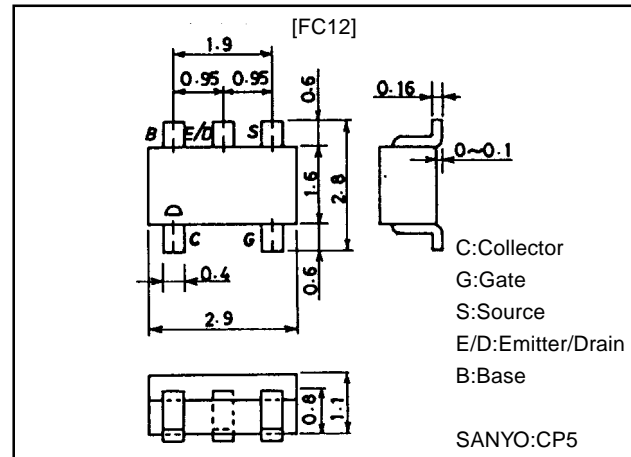
- Composite type with 2 transistors contained in the CP package currently in use, improving the mounting efficiency greatly.
- The FC12 is formed with two chips, being equivalent to the 2SC4639, placed in one package.
- Common drain and emitter.

Electrical Connection

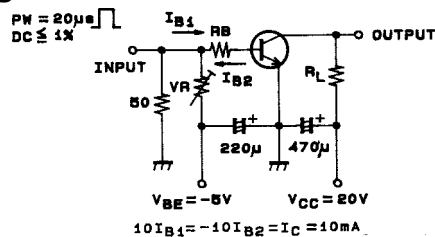


Package Dimensions

unit:mm
2075



Switching Time Test Circuit



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	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Marking:12

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FC12

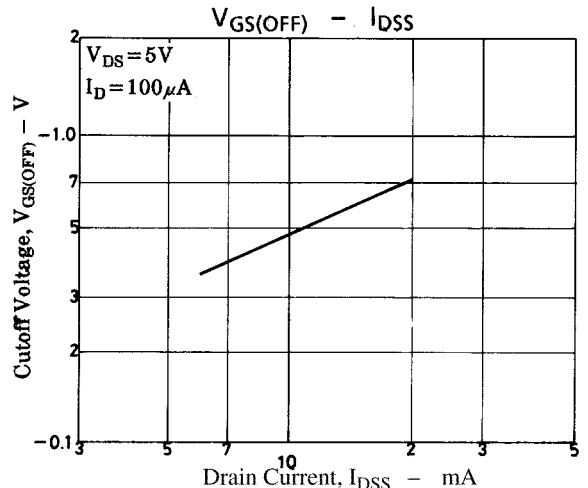
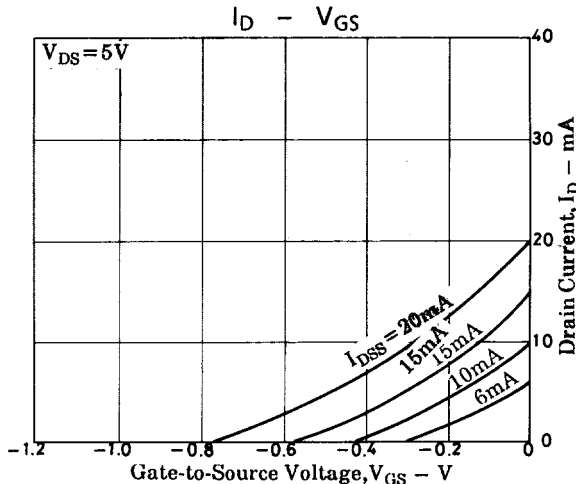
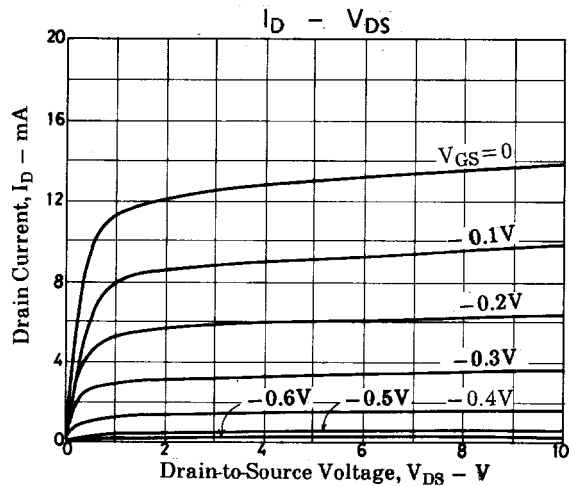
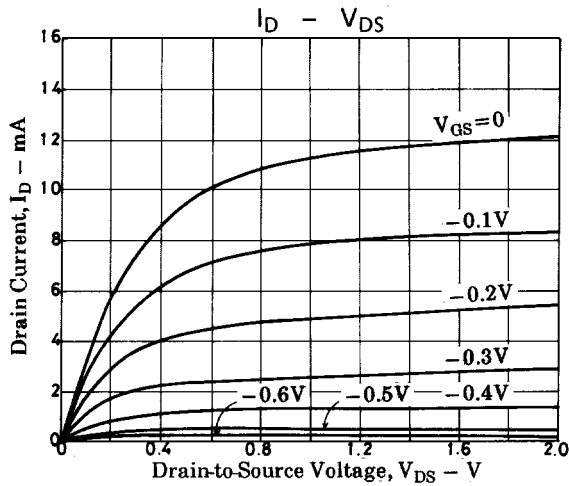
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FET]						
Gate-to-Drain Breakdown Voltage	$V_{(BR)GDS}$	$I_G = -10\mu\text{A}, V_{DS} = 0$	-15			V
Gate-to-Cutoff Current	I_{GSS}	$V_{GS} = -10\text{V}, V_{DS} = 0$			-1.0	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 5\text{V}, I_D = 100\mu\text{A}$	-0.2	-0.6	-1.4	V
Drain Current	I_{DSS}	$V_{DS} = 5\text{V}, V_{GS} = 0$	6.0*		20.0*	mA
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{kHz}$	25	50		mS
Input Capacitance	C_{iss}	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{MHz}$		10		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 5\text{V}, V_{GS} = 0, f = 1\text{MHz}$		3.0		pF
Noise Figure	NF	$V_{DS} = 5\text{V}, R_g = 1\text{k}\Omega, I_D = 1\text{mA}, f = 1\text{kHz}$		1.5		dB
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB} = 35\text{V}, I_E = 0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 6\text{V}, I_C = 1\text{mA}$	135		400	
Gain-Bandwidth Product	f_T	$V_{CE} = 6\text{V}, I_C = 10\text{mA}$		200		MHz
Output Capacitance	C_{ob}	$V_{CB} = 6\text{V}, f = 1\text{MHz}$		1.7		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$		0.08	0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = 50\text{mA}, I_B = 5\text{mA}$		0.8	1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	55			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, R_{BE} = \infty$	50			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}, I_C = 0$	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

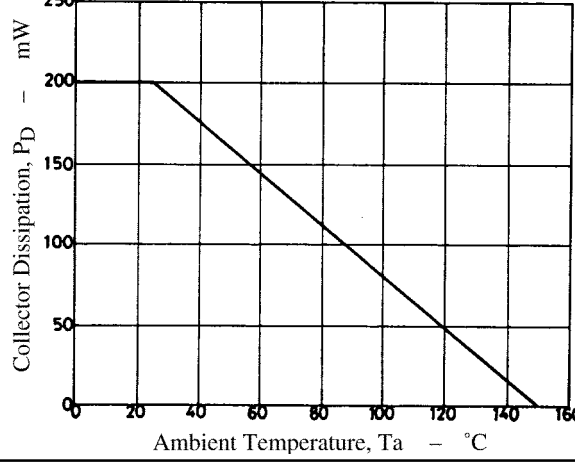
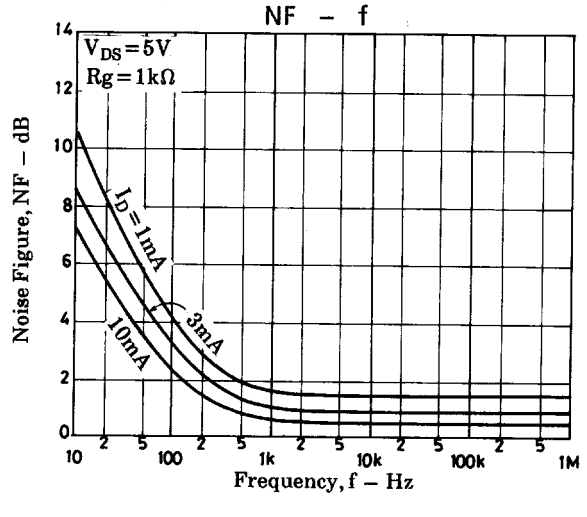
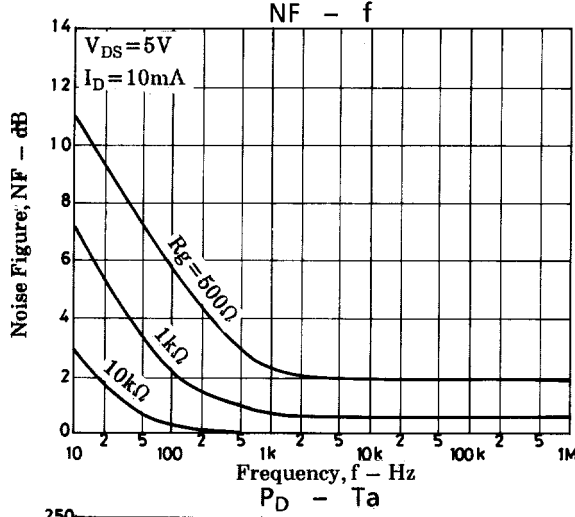
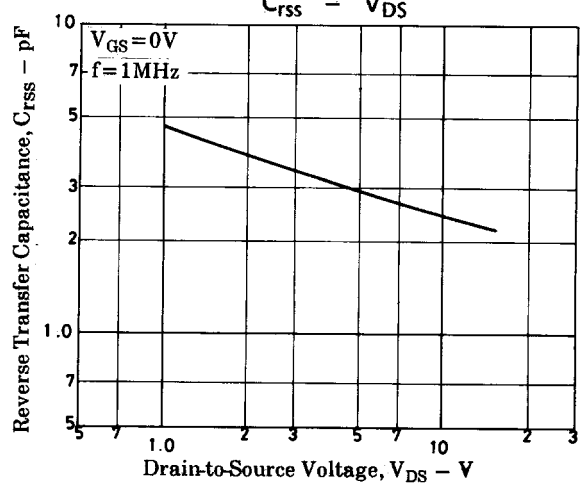
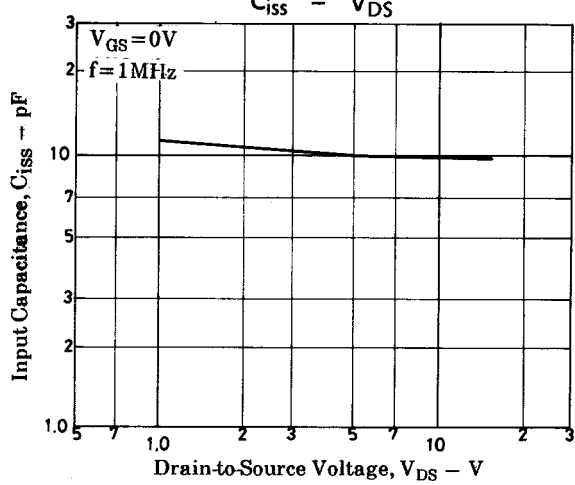
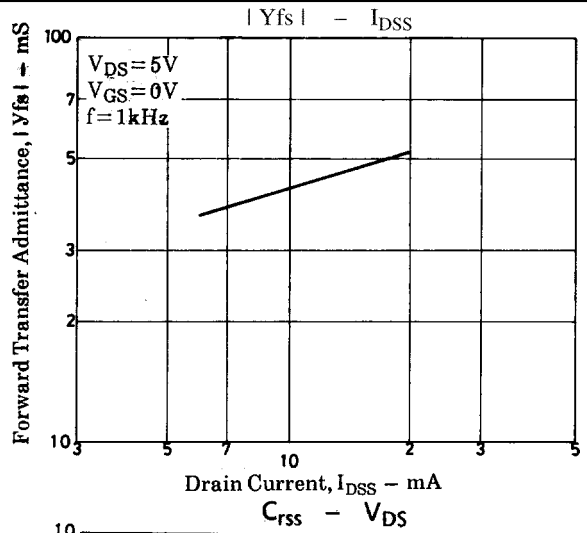
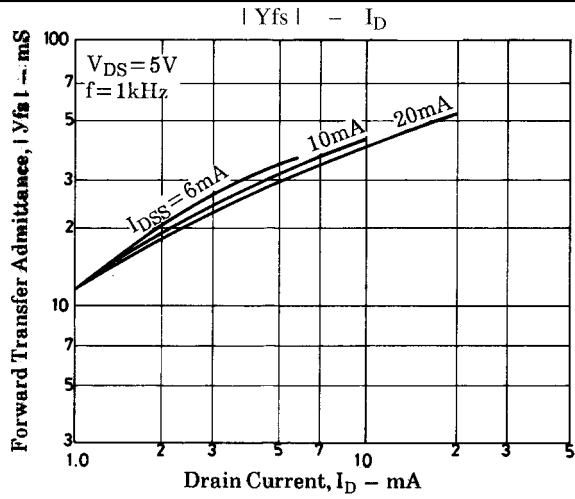
Note*: The FC12 is classified by I_{DSS} as follows : (unit: mA).

6.0 F	12.0	10.0 G	20.0
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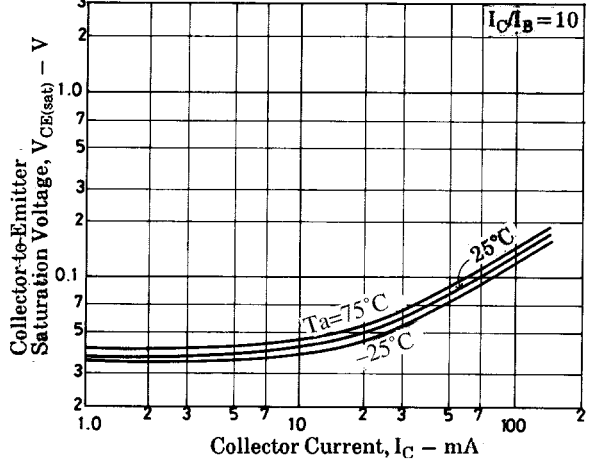
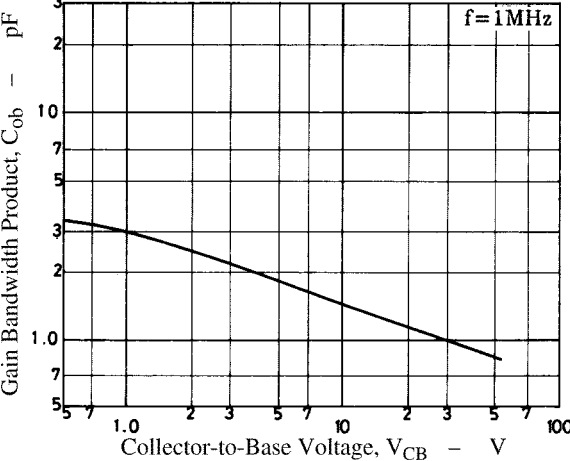
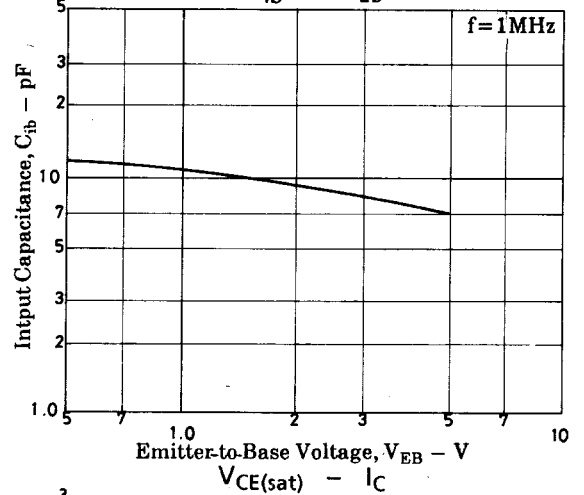
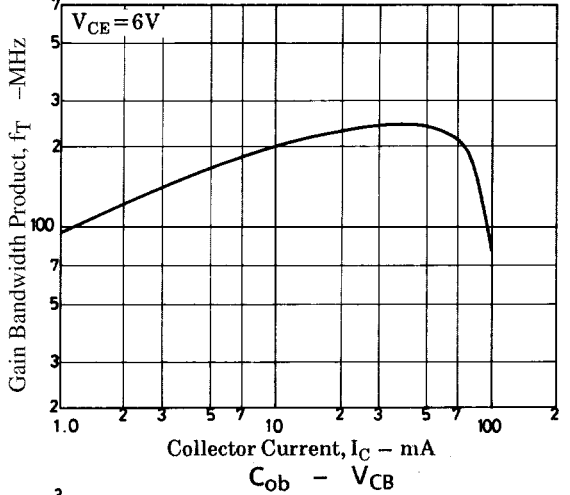
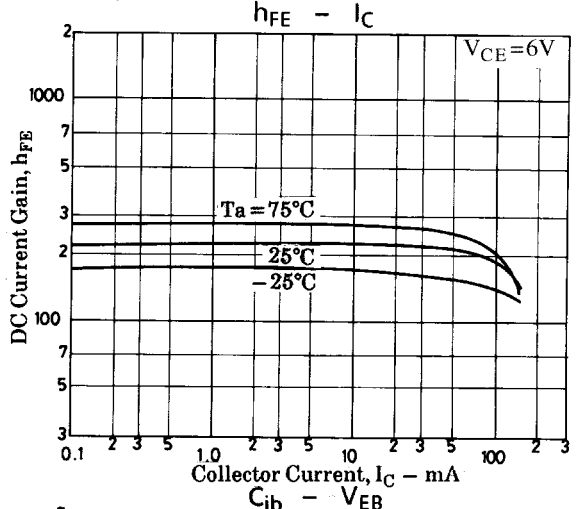
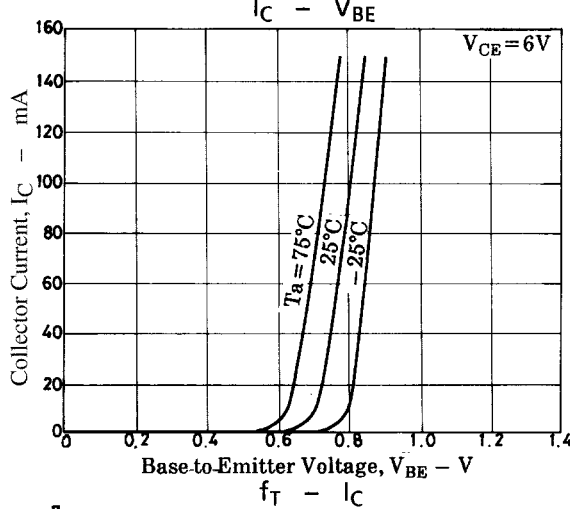
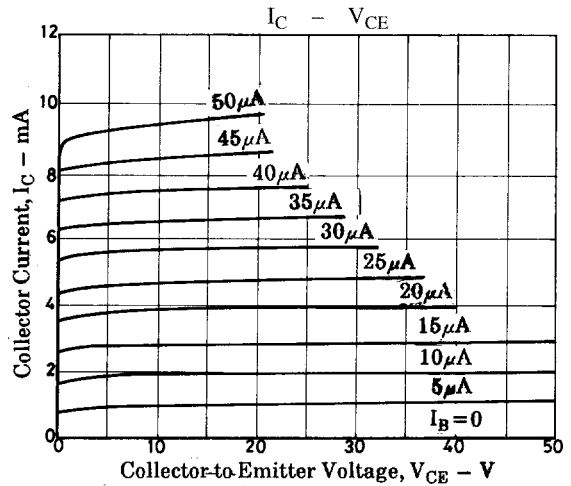
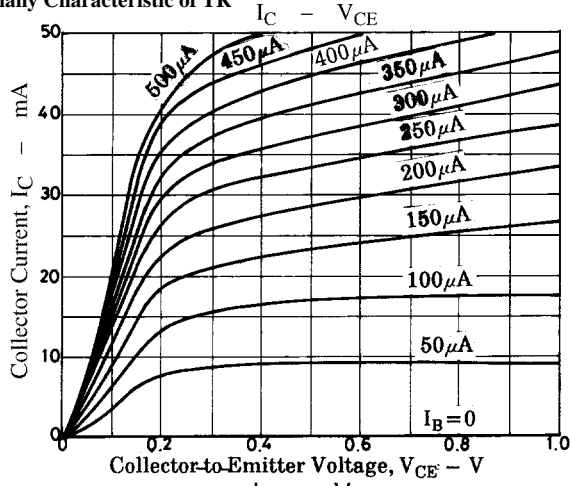
Primary Characteristics of FET

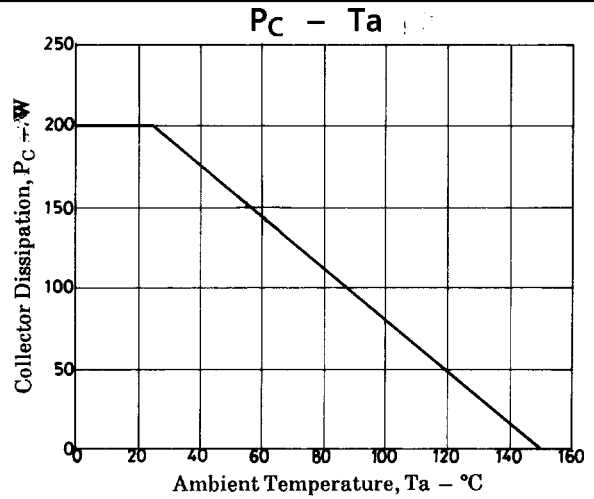
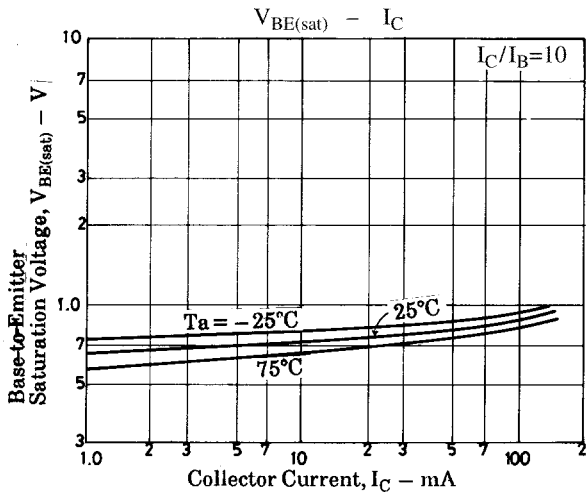


FC12



Primary Characteristic of TR





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