



SANYO Semiconductors

DATA SHEET

CPH5902

NPN Epitaxial Planar Silicon Transistor

N-Channel Silicon Junction FET

High-Frequency Amplifier, AM Amplifier, Low-Frequency Amplifier Applications

Features

- Composite type with J-FET and NPN transistors contained in the CPH5 package, improving the mounting efficiency greatly.
- The CPH5902 contains a 2SK2394-equivalent chip and a 2SC4639-equivalent chip in one package.
- Drain and emitter are shared.

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		350	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		350	mW
[Common Ratings]				
Total Dissipation	P _T		500	mW
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

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CPH5902

Electrical Characteristics 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 Cutoff Current	I _{GSS}	V _{GS} =-10V, V _{DS} =0			-1.0	nA
Cutoff Voltage	V _{GS(off)}	V _{DS} =5V, I _D =100μA	-0.4	-0.7	-1.5	V
Drain Current	I _{DSS}	V _{DS} =5V, V _{GS} =0	10.0*		32.0*	mA
Forward Transfer Admittance	y _{fs}	V _{DS} =5V, V _{GS} =0, f=1kHz	24	38		mS
Input Capacitance	C _{iss}	V _{DS} =5V, V _{GS} =0, f=1MHz		10.0		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =5V, V _{GS} =0, f=1MHz		2.9		pF
Noise Figure	NF	V _{DS} =5V, R _g =1kΩ, I _D =1mA, f=1kHz		1.0		dB
[TR]						
Collector Cutoff 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	C _{ob}	V _{CB} =6V, f=1MHz		1.7		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =50mA, I _B =5mA		0.08	0.4	V
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =50mA, I _B =5mA		0.8	1.0	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I _C =10μA, I _E =0	55			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I _C =1mA, R _{BE} =∞	50			V
Emitter-to-Base 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

Marking : RB

* : The CPH5902 is classified by I_{DSS} as follows : (unit : mA)

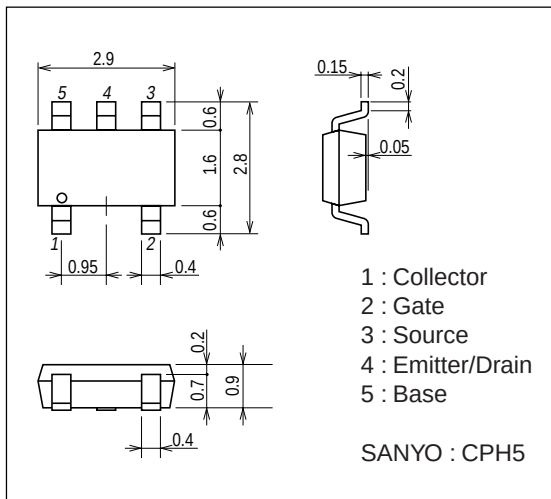
Rank	G	H
I_{DSS}	10.0 to 20.0	16.0 to 32.0

The specifications shown above are for each individual FET or transistor.

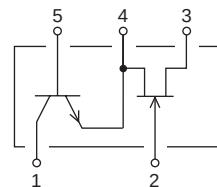
Package Dimensions

unit : mm

2196



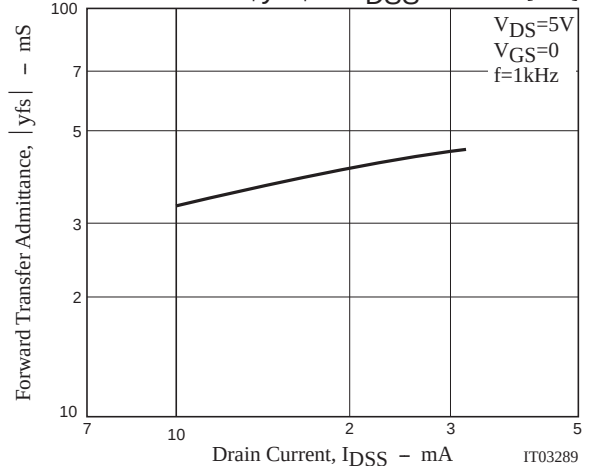
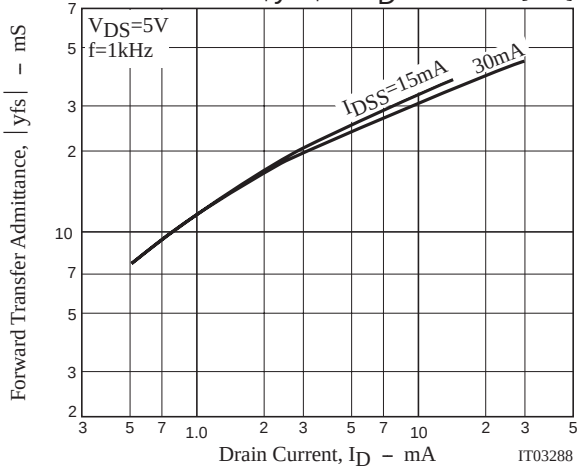
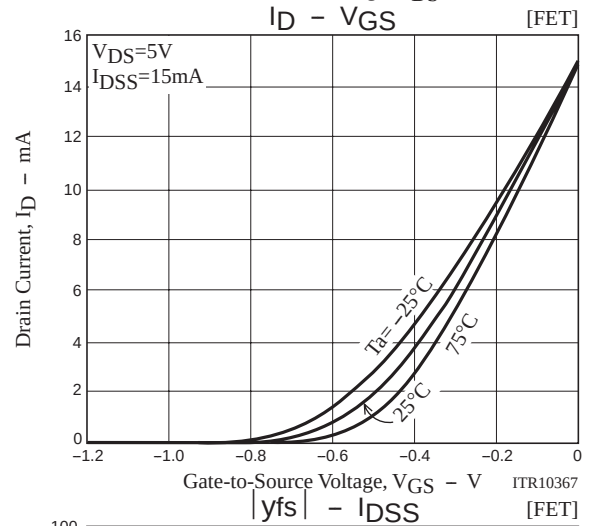
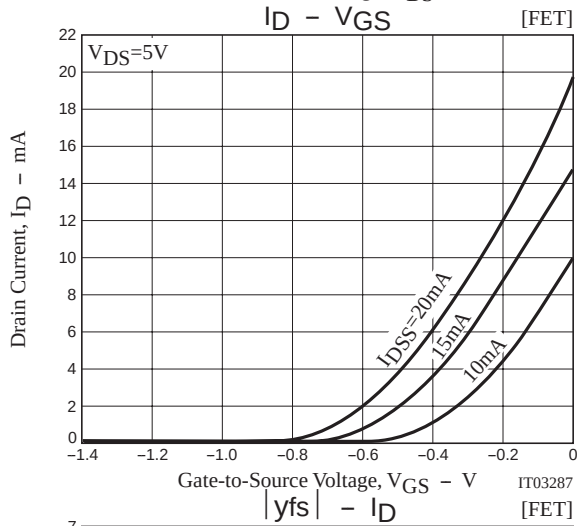
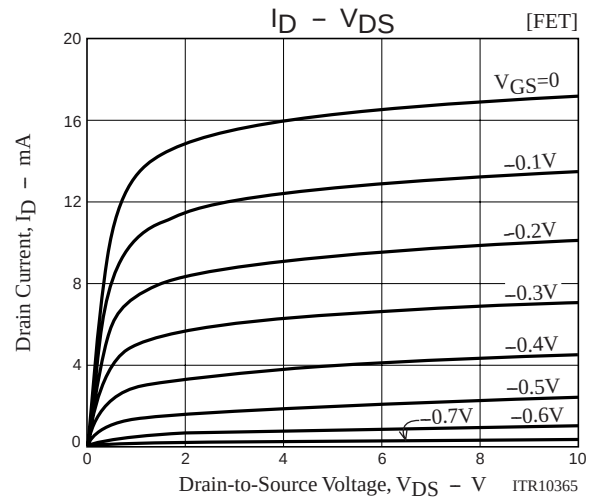
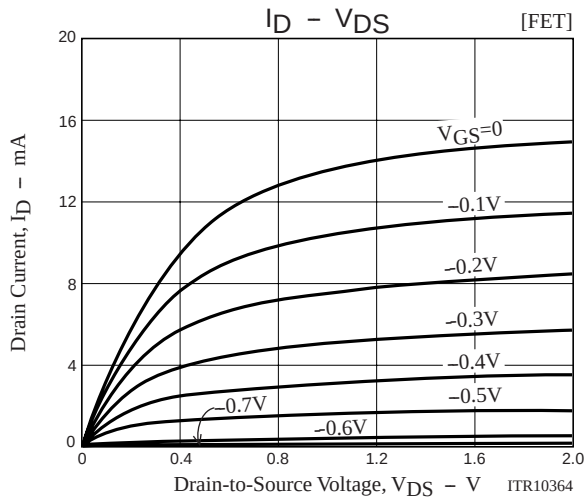
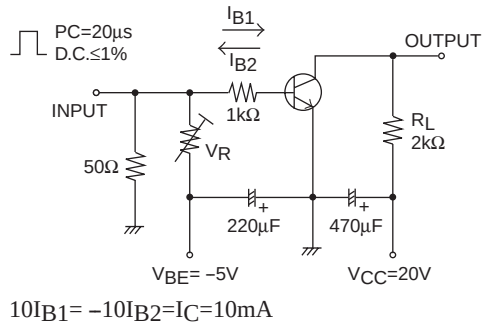
Electrical Connection

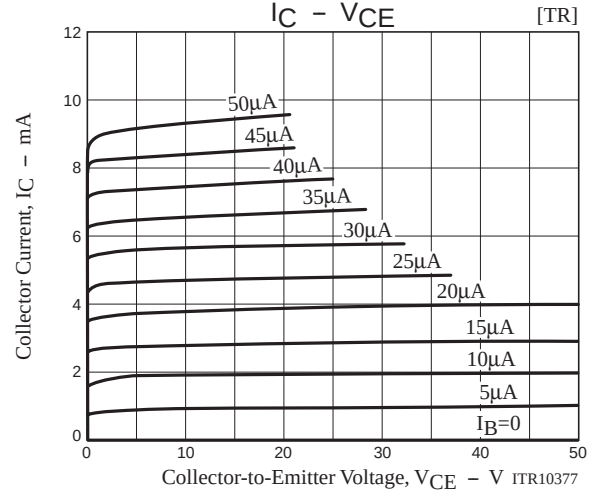
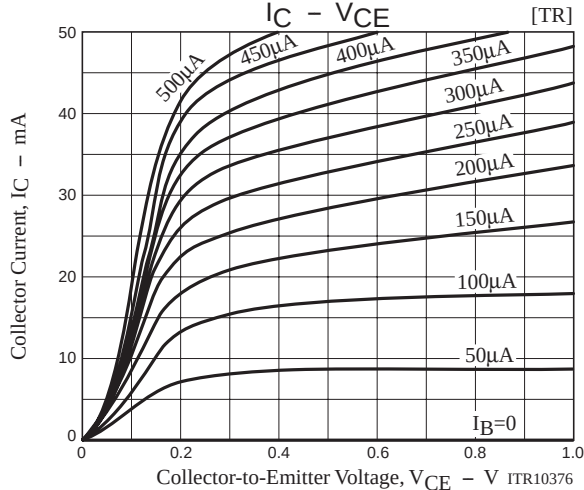
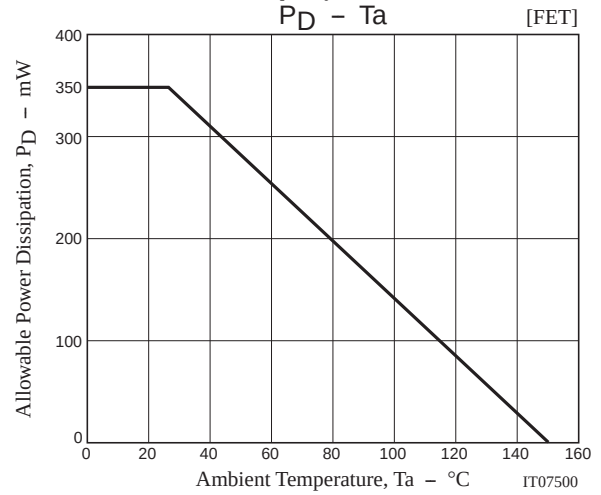
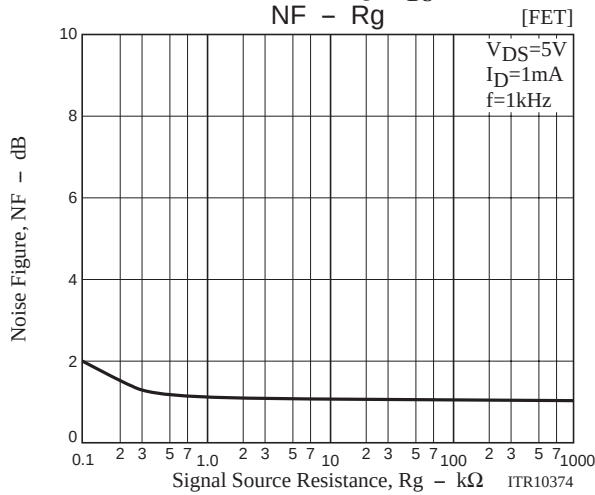
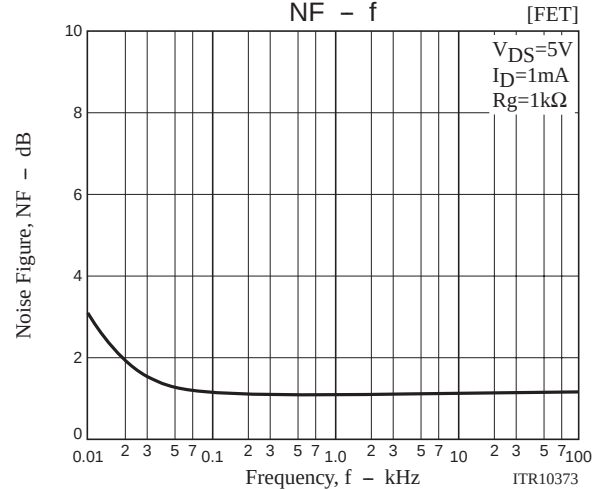
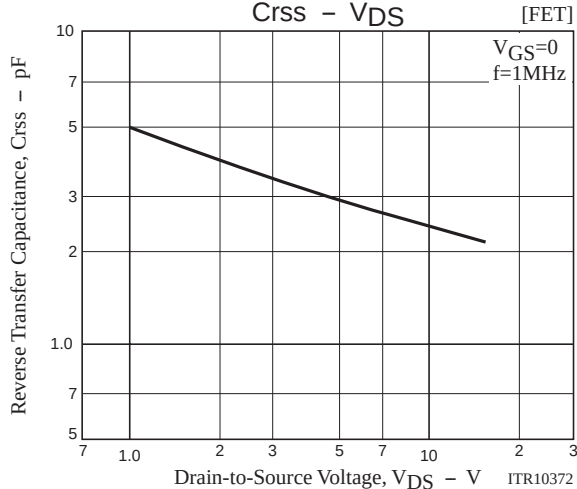
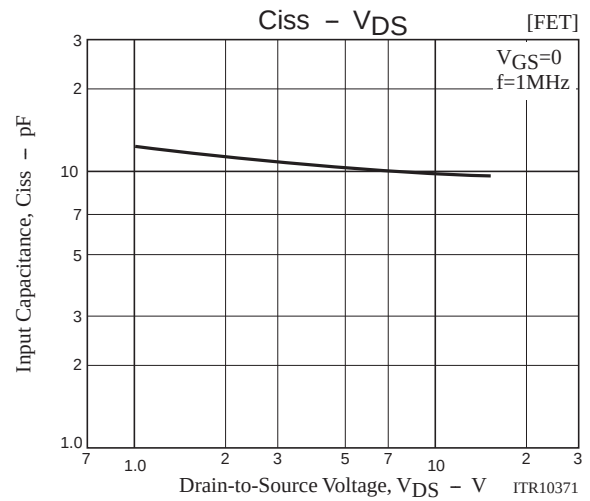
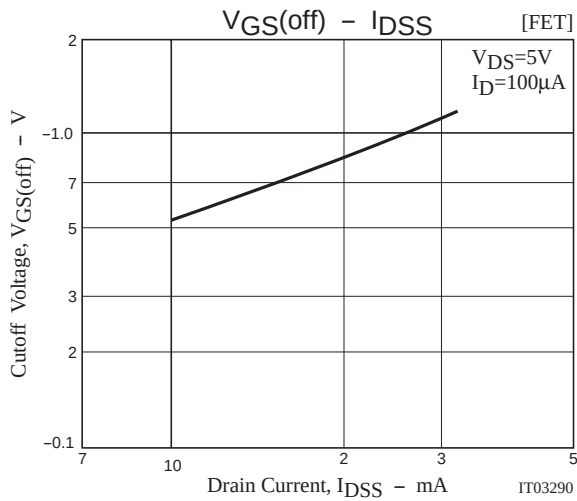


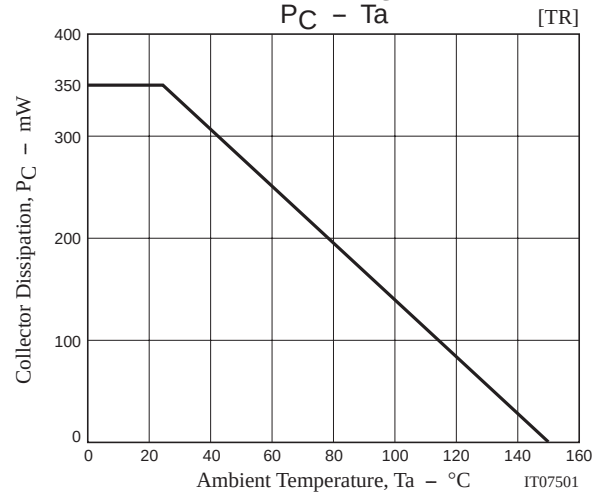
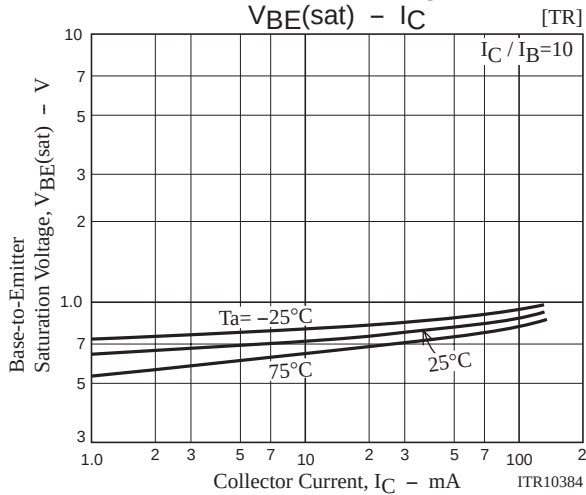
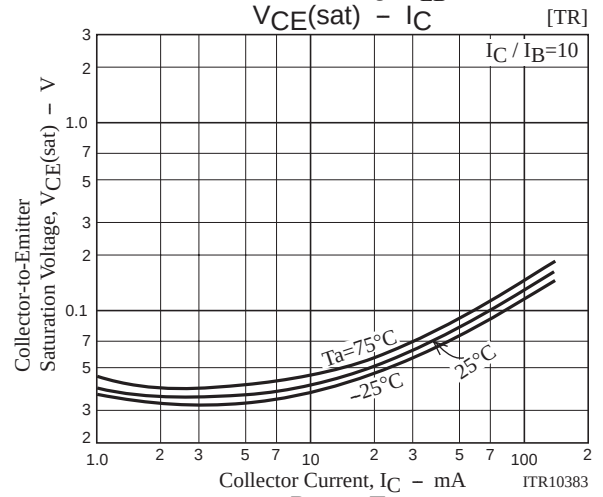
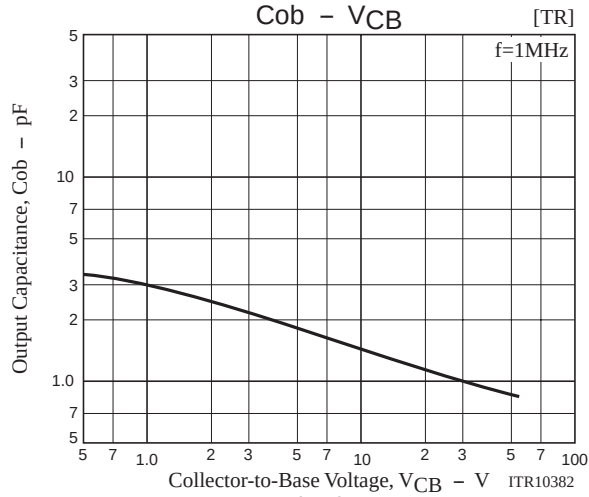
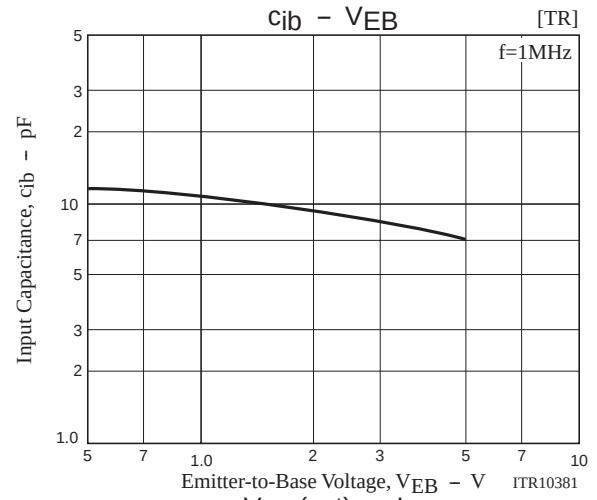
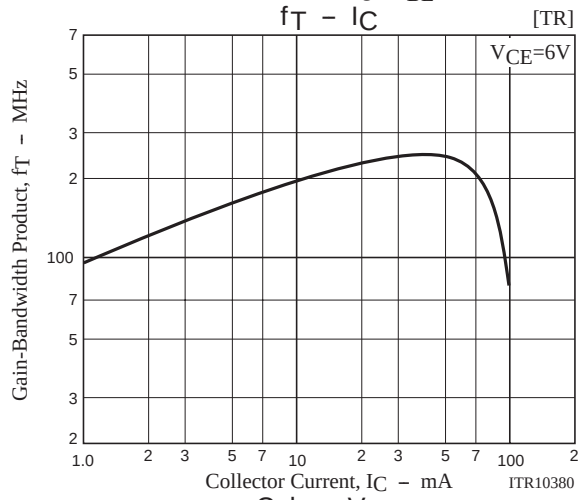
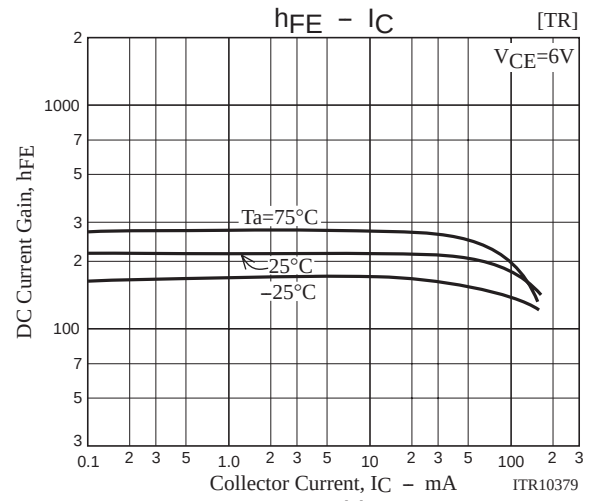
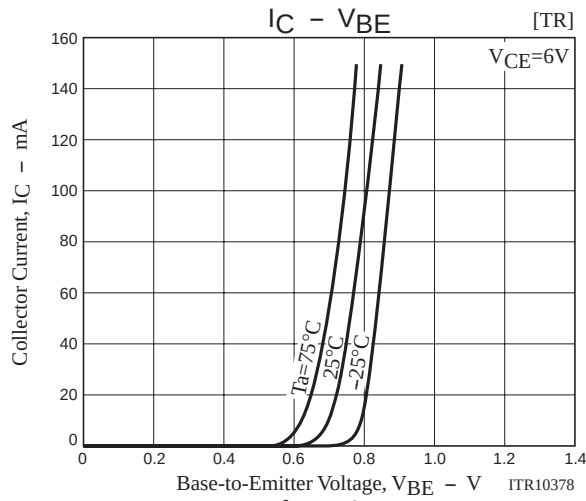
- 1 : Collector
- 2 : Gate
- 3 : Source
- 4 : Emitter / Drain
- 5 : Base

Top view

Switching Time Test Circuit







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