



# CPH5905

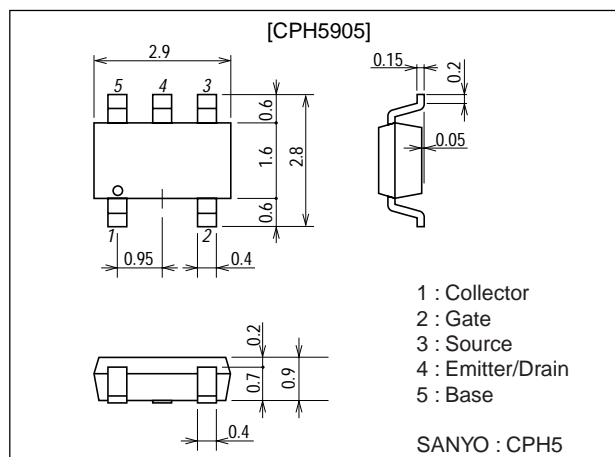
## High-Frequency Amplifier, AM Amplifier, Low-Frequency Amplifier Applications

### Features

- Composite type with J-FET and NPN transistors contained in the CPH5 package, improving the mounting efficiency greatly.
- The CPH5905 contains a 2SK3557-equivalent chip and a 2SC4639-equivalent chip in one package.
- Drain and emitter are shared.

### Package Dimensions

unit : mm  
2196



### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[FET]				
Drain-to-Source Voltage	V <sub>D SX</sub>		15	V
Gate-to-Drain Voltage	V <sub>G DS</sub>		-15	V
Gate Current	I <sub>G</sub>		10	mA
Drain Current	I <sub>D</sub>		50	mA
Allowable Power Dissipation	P <sub>D</sub>		200	mW
[TR]				
Collector-to-Base Voltage	V <sub>C BO</sub>		55	V
Collector-to-Emitter Voltage	V <sub>C EO</sub>		50	V
Emitter-to-Base Voltage	V <sub>E BO</sub>		6	V
Collector Current	I <sub>C</sub>		150	mA
Collector Current (Pulse)	I <sub>C P</sub>		300	mA
Base Current	I <sub>B</sub>		30	mA
Collector Dissipation	P <sub>C</sub>		200	mW
[Common Ratings]				
Total Dissipation	P <sub>T</sub>		300	mW
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

Marking : 1E

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## Electrical Characteristics at Ta=25°C

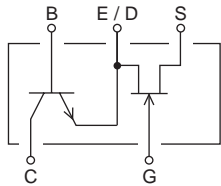
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FET]						
Gate-to-Drain Breakdown Voltage <sup>1</sup>	V(BR)GDS	I <sub>G</sub> =-10μA, V <sub>DS</sub> =0	-15			V
Gate Cutoff Current	I <sub>GSS</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =0			-1.0	nA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =100μA	-0.4	-0.7	-1.5	V
Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0	10.0*		32.0*	mA
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0, f=1kHz	24	35		mS
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0, f=1MHz		10.0		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =0, f=1MHz		2.9		pF
Noise Figure	NF	V <sub>DS</sub> =5V, R <sub>g</sub> =1kΩ, I <sub>D</sub> =1mA, f=1kHz		1.0		dB
[TR]						
Collector Cutoff Current	I <sub>CBO</sub>	V <sub>CB</sub> =35V, I <sub>E</sub> =0			0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			0.1	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA	135		400	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =10mA		200		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =6V, f=1MHz		1.7		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA		0.08	0.4	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA		0.8	1.0	V
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =10μA, I <sub>E</sub> =0	55			V
Collector-to-Emitter Breakdown Voltage	V(BR)CEO	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Turn-ON Time	t <sub>on</sub>	See specified Test Circuit.		0.15		μs
Storage Time	t <sub>stg</sub>	See specified Test Circuit.		0.75		μs
Fall Time	t <sub>f</sub>	See specified Test Circuit.		0.20		μs

\* : The CPH5905 is classified by I<sub>DSS</sub> as follows : (unit : mA)

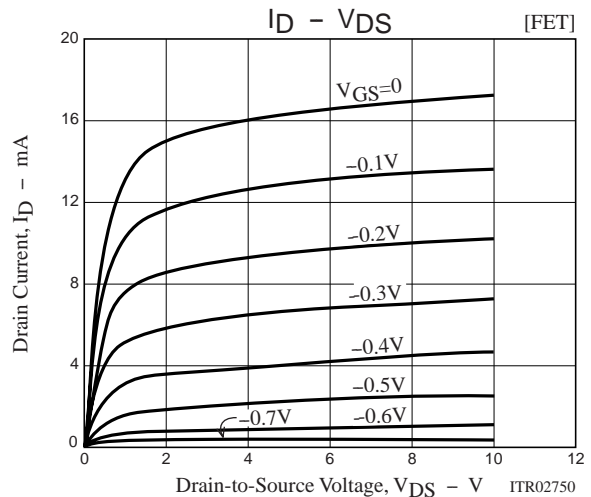
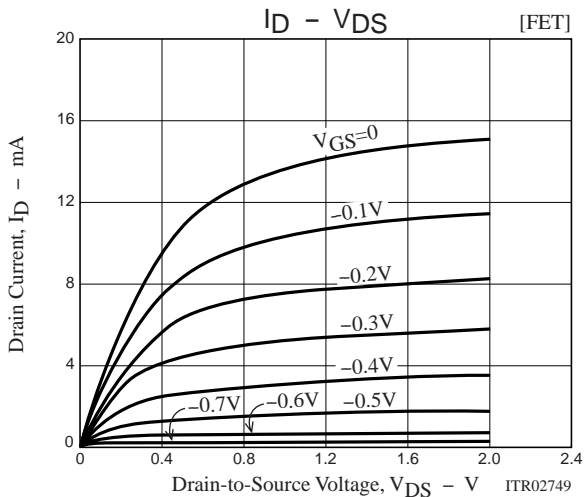
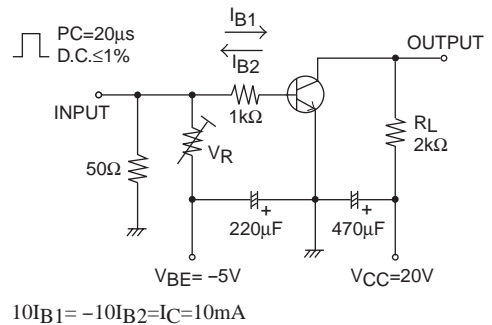
Rank	G	H
I <sub>DSS</sub>	10.0 to 20.0	16.0 to 32.0

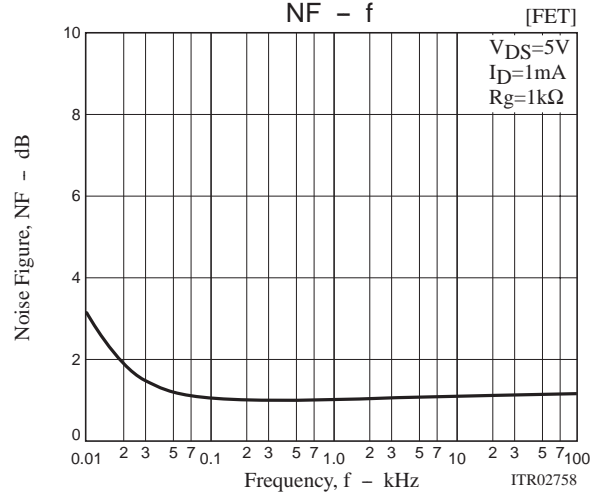
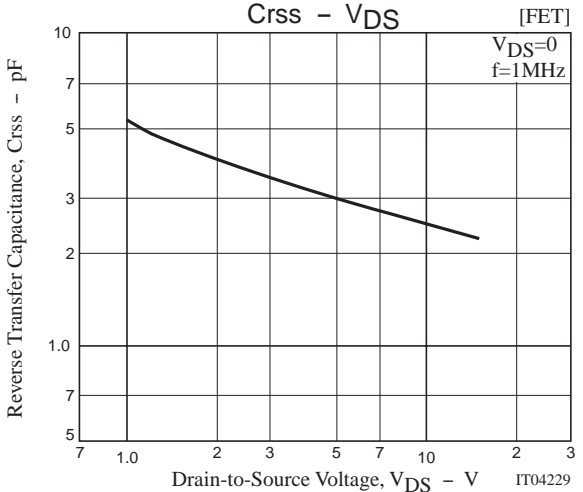
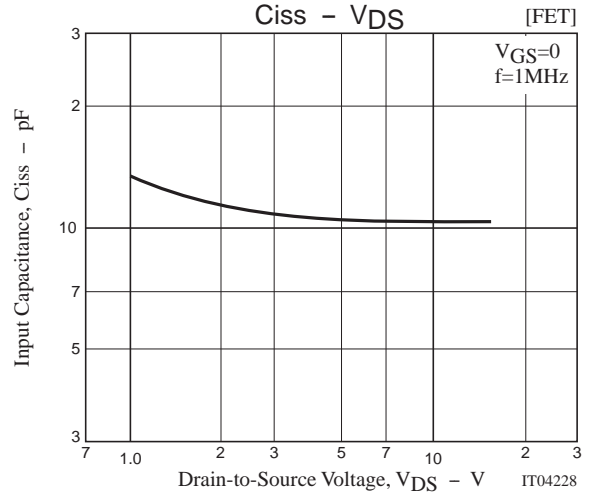
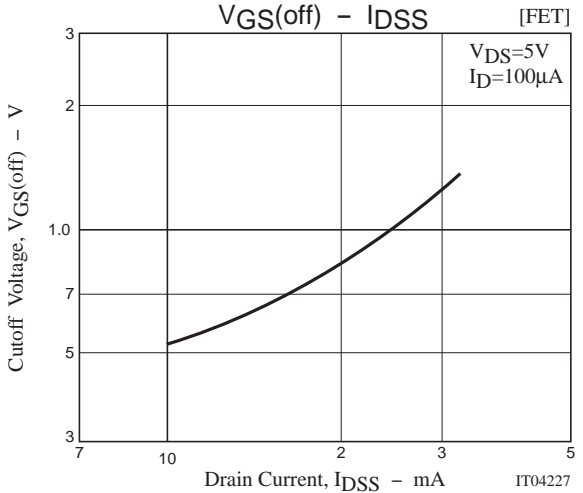
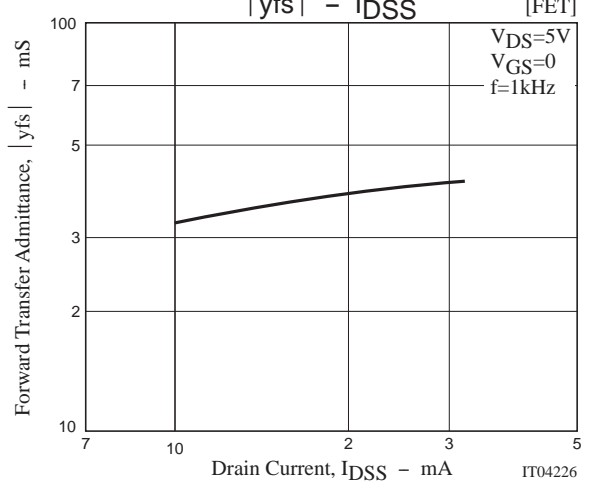
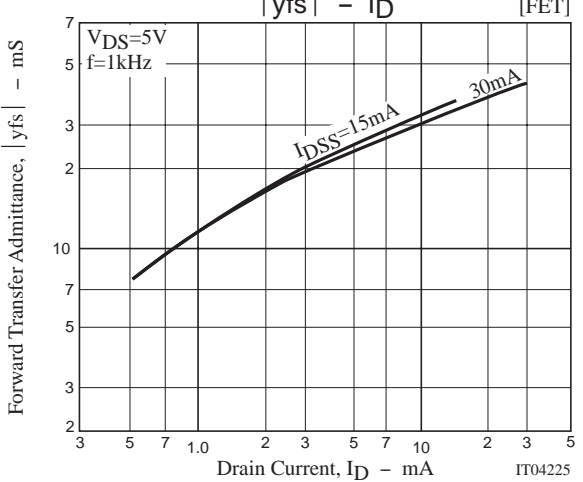
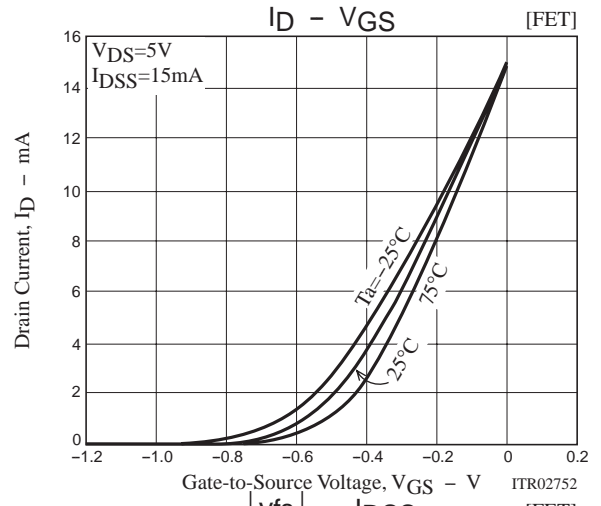
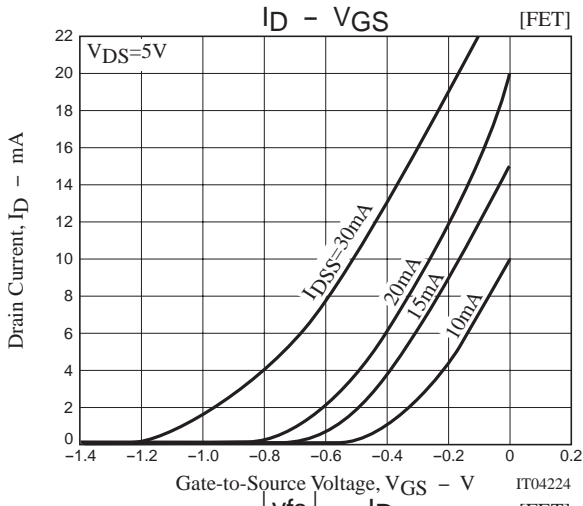
The specifications shown above are for each individual FET or a transistor.

## Electrical Connection (Top view)

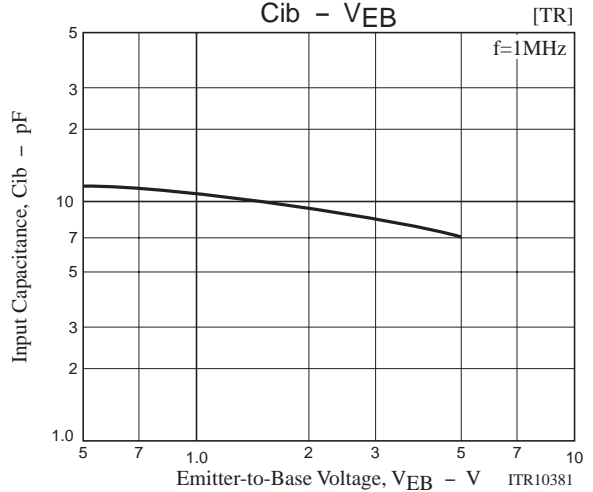
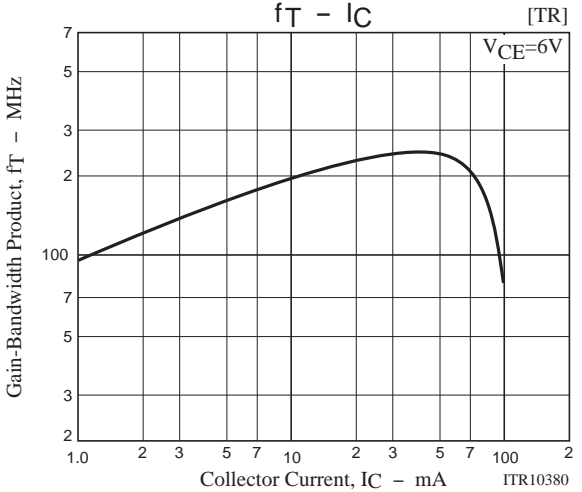
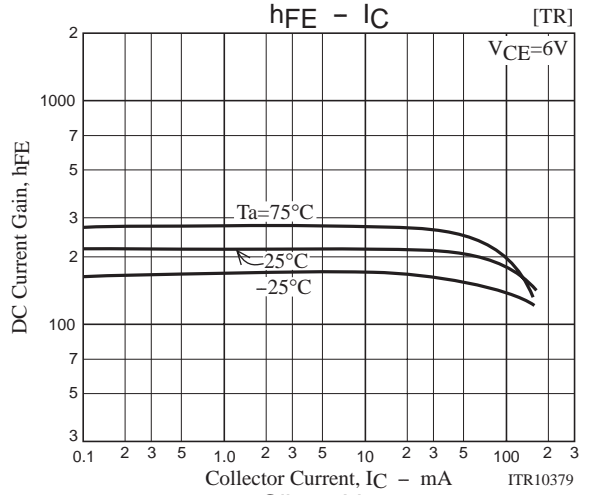
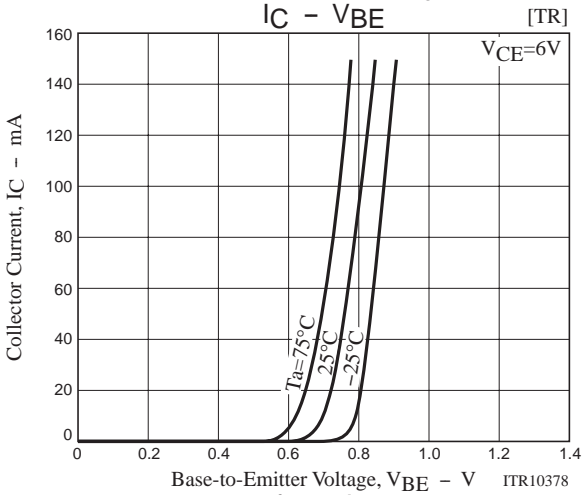
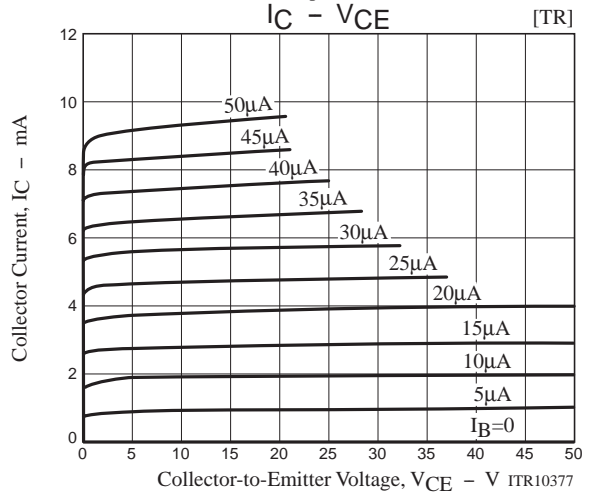
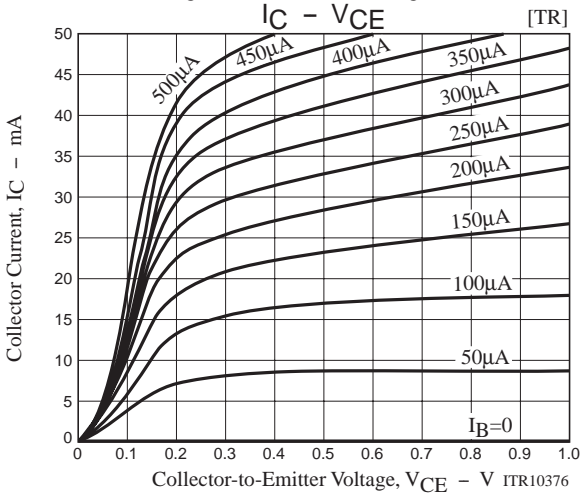
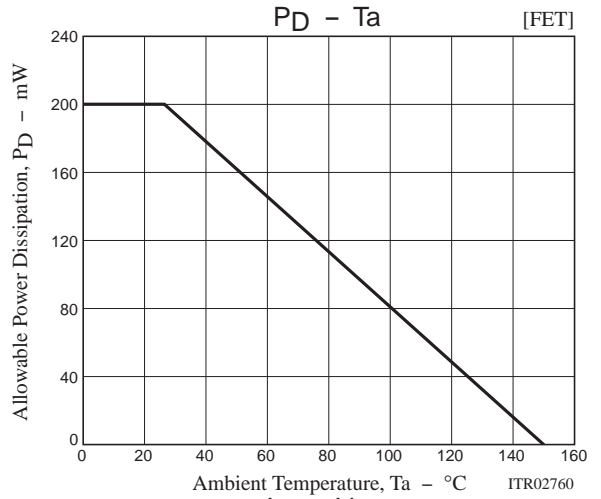
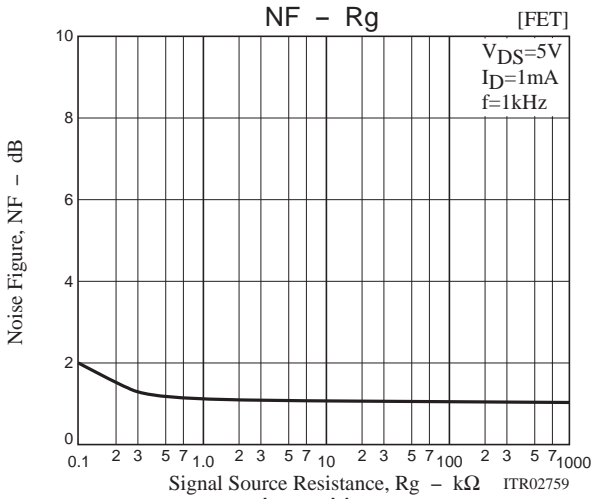


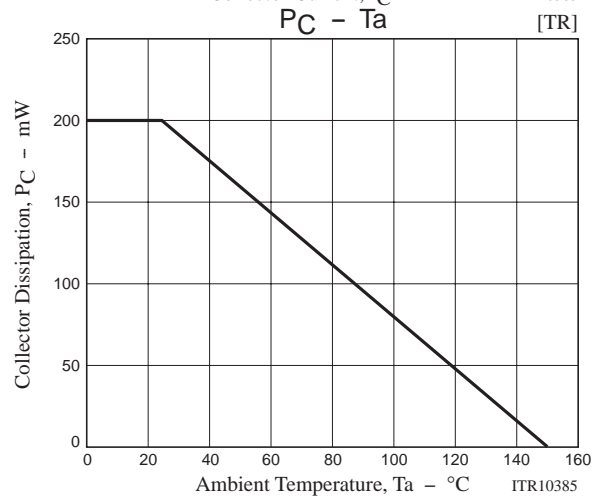
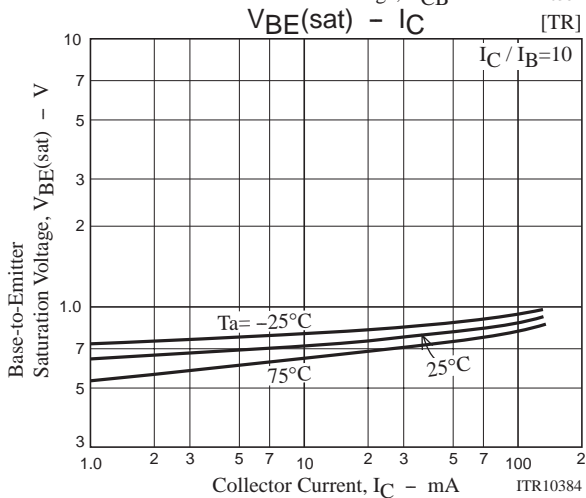
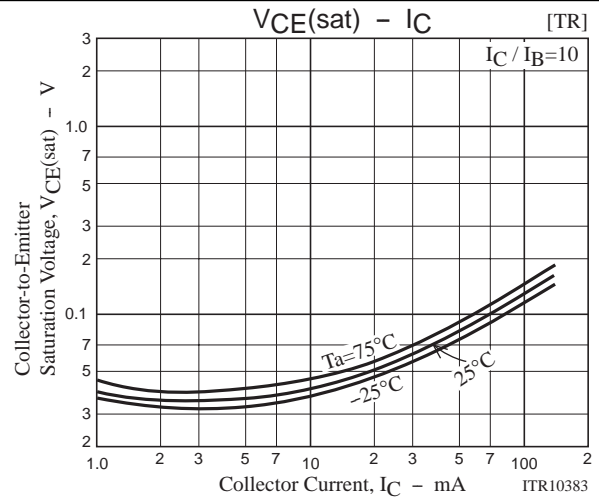
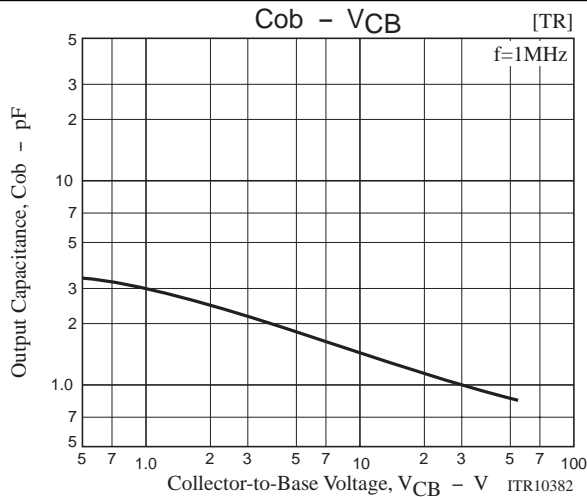
## Switching Time Test Circuit





# CPH5905





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