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MCH5541

PNP / NPN Epitaxial Planar Silicon Transistor

Push-Pull Circuit Applications

Applications

- MOSFET gate drivers, relay drivers, lamp drivers, motor drivers.

Features

- Composite type with a PNP / NPN transistor contained in one package, facilitating high-density mounting.
- Ultrasmall package permitting applied sets to be small and slim.

Specifications () : PNP

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-30)40	V
Collector-to-Emitter Voltage	V _{CEO}		(-30)30	V
Emitter-to-Base Voltage	V _{EBO}		(-)5	V
Collector Current	I _C		(-)700	mA
Collector Current (Pulse)	I _{CP}	PW≤10μs	(-)3	A
Collector Dissipation	P _C	Mounted on a ceramic board (600mm ² X0.8m)	0.5	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =(-)30V, I _E =0			(-)100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)100	nA
DC Current Gain	h _{FE}	V _{CE} =(-)2V, I _C =(-)50mA	(200)300		(500)800	
Gain-Bandwidth Product	f _T	V _{CE} =(-)2V, I _C =(-)50mA		(520)540		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(4.7)3.3		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)200mA, I _B =(-)10mA		(-110)85	(-220)190	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =(-)200mA, I _B =(-)10mA		(-)0.9	(-)1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =(-)10μA, I _E =0	(-30)40			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =(-)1mA, R _{BE} =∞	(-)30			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =(-)10μA, I _C =0	(-)5			V

Marking : E1

Continued on next page.

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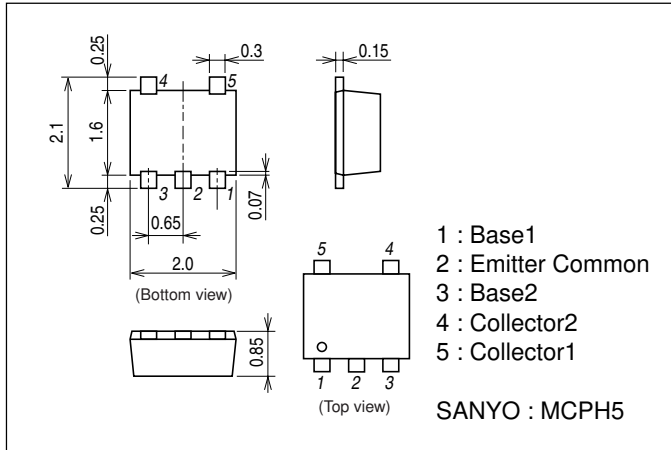
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Time	t_{on}	See specified Test Circuit.		35		ns
Storage Time	t_{stg}	See specified Test Circuit.		(125)255		ns
Fall Time	t_f	See specified Test Circuit		(25)40		ns

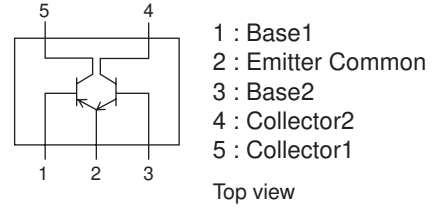
Package Dimensions

unit : mm

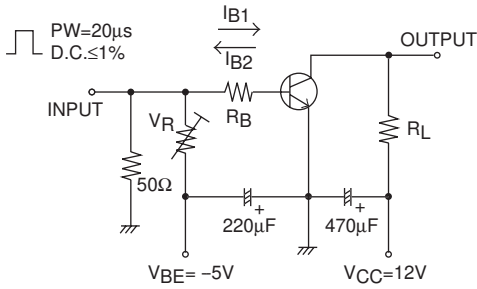
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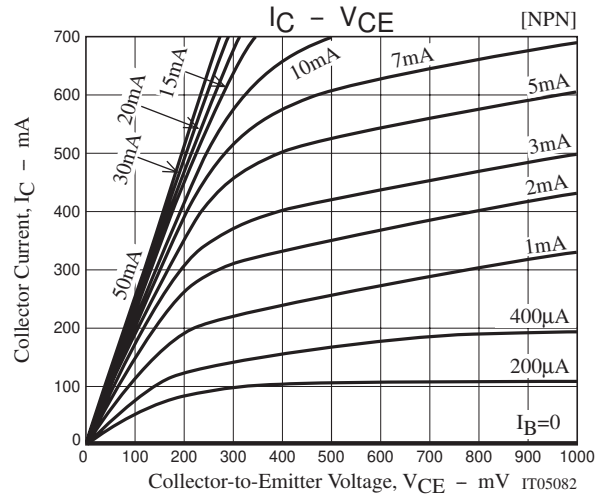
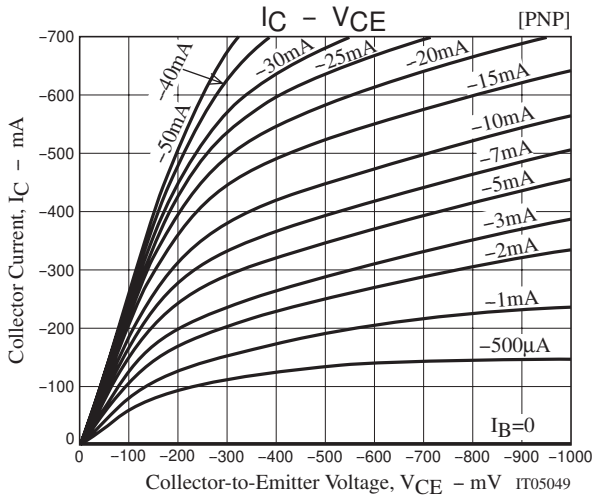
Electrical Connection



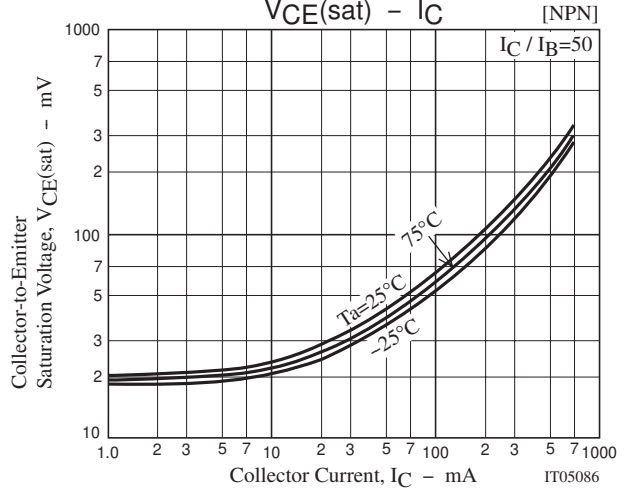
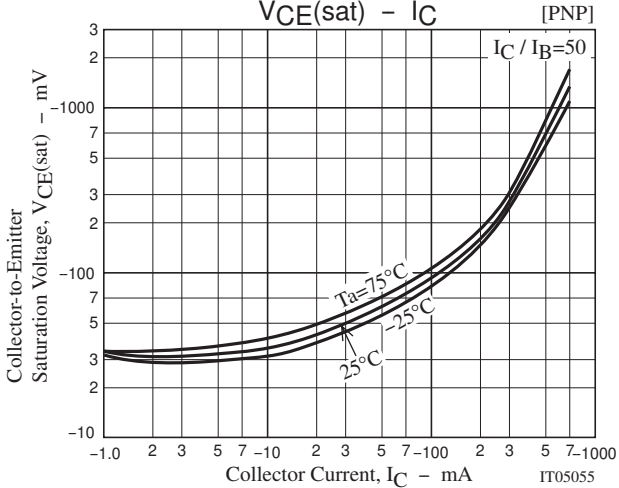
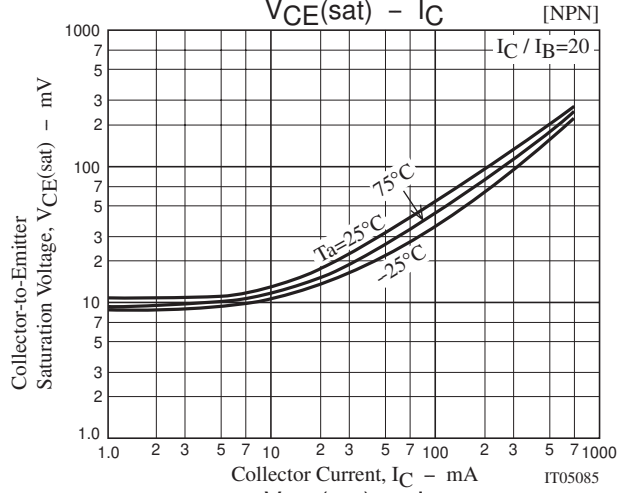
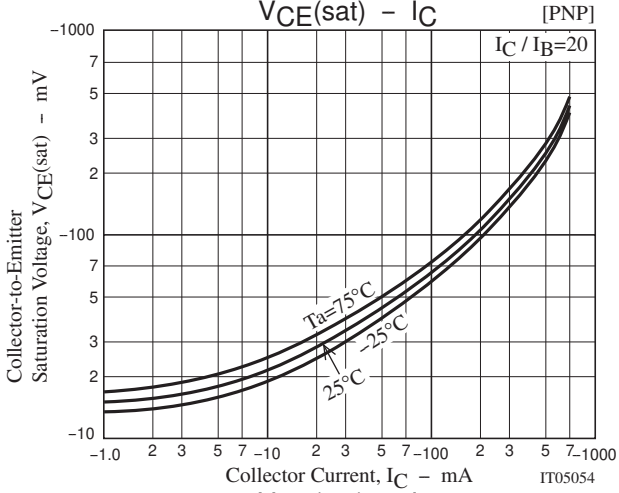
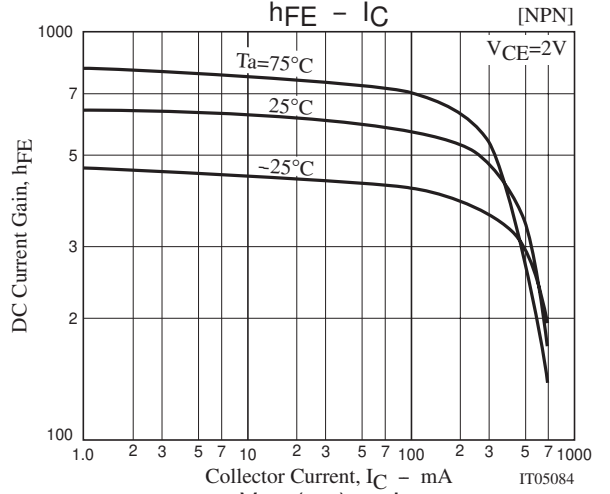
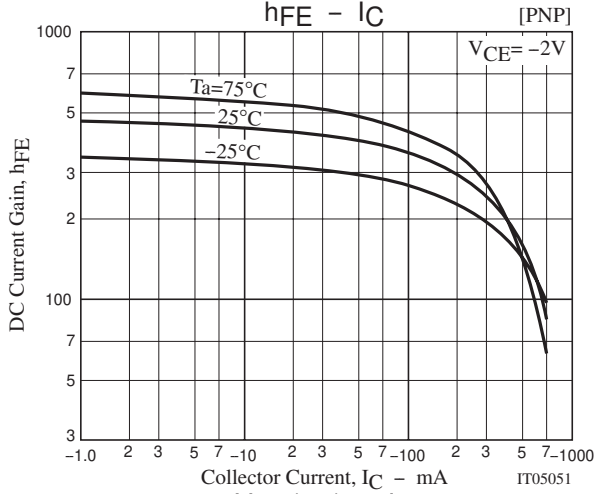
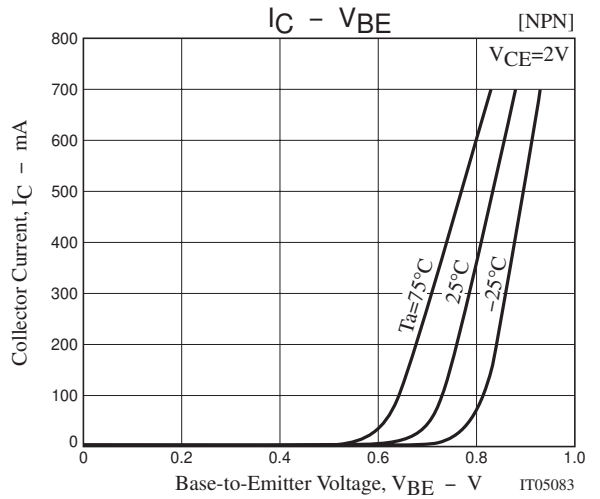
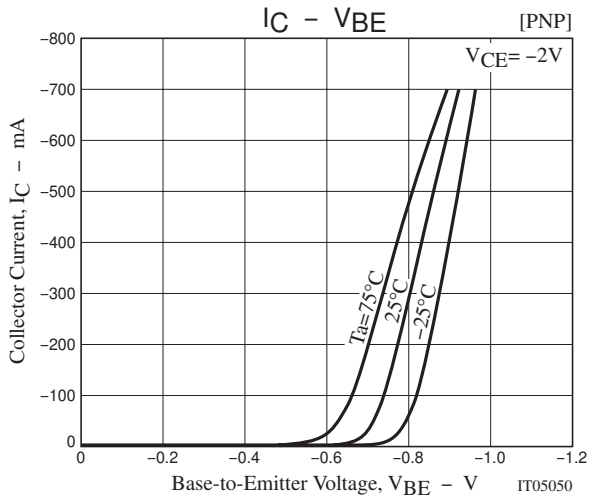
Switching Time Test Circuit



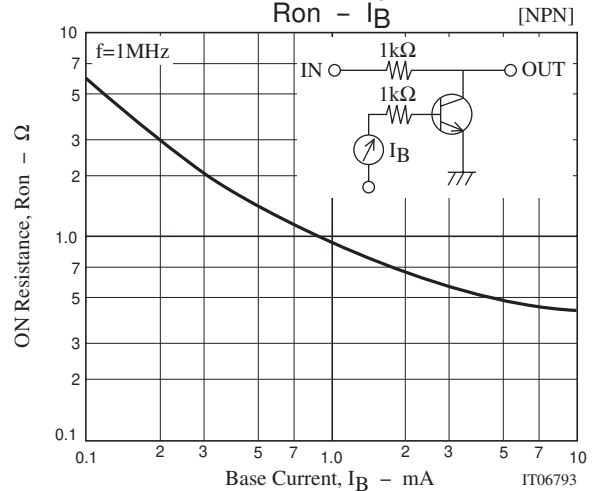
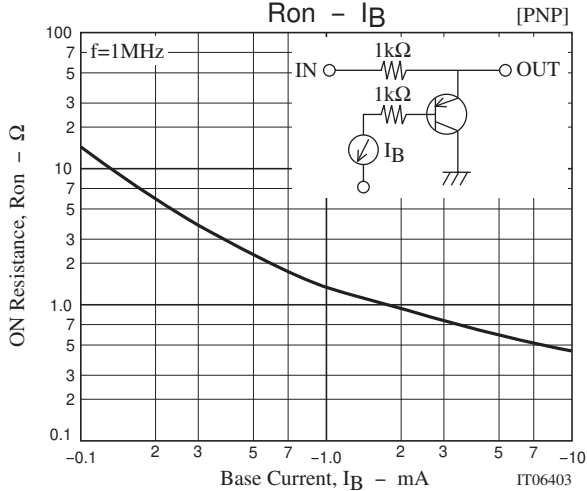
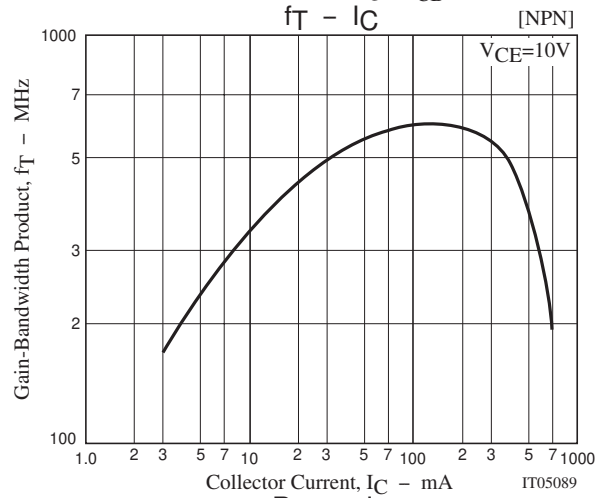
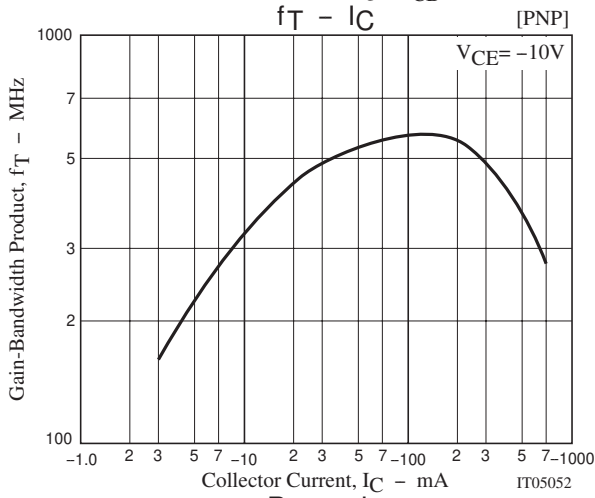
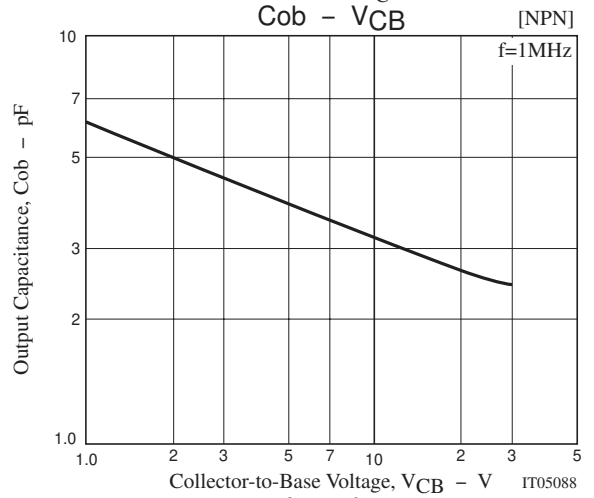
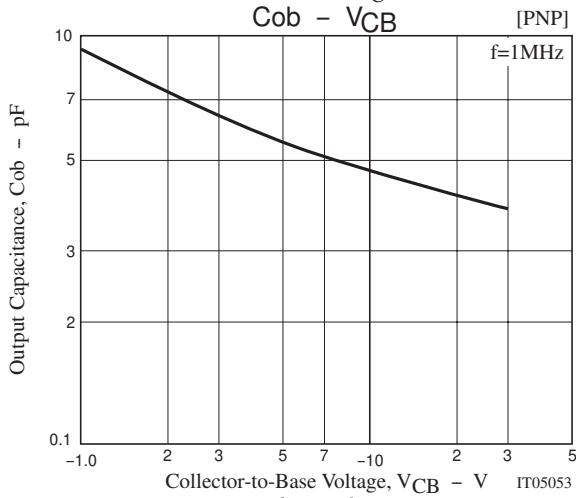
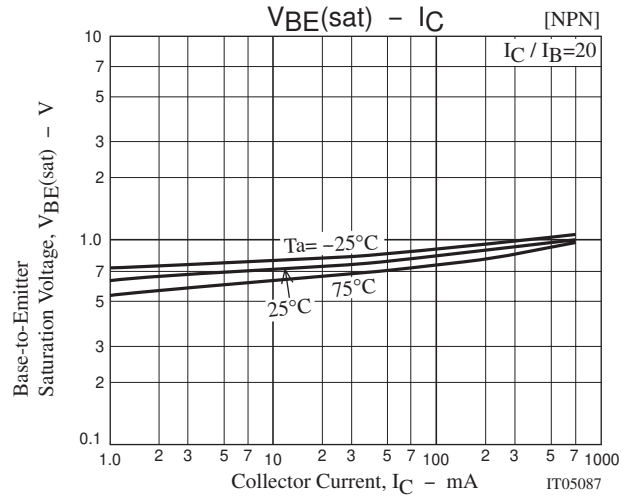
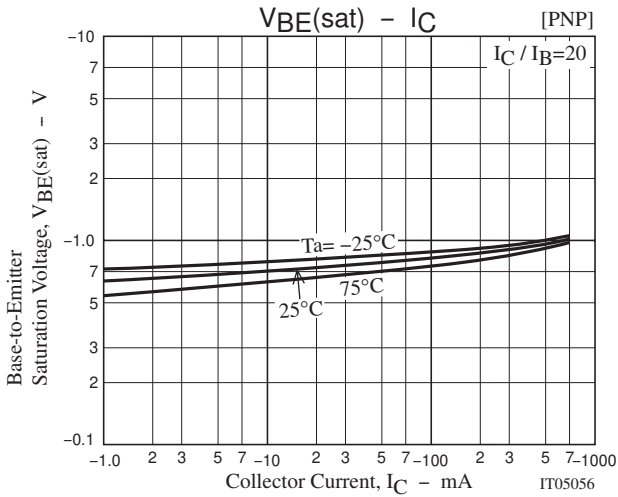
$20I_{B1} = -20I_{B2} = I_C = 300mA$
 For PNP, minus sign is omitted.



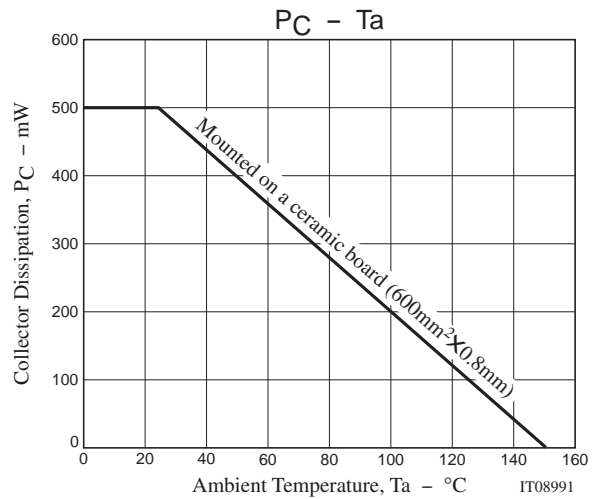
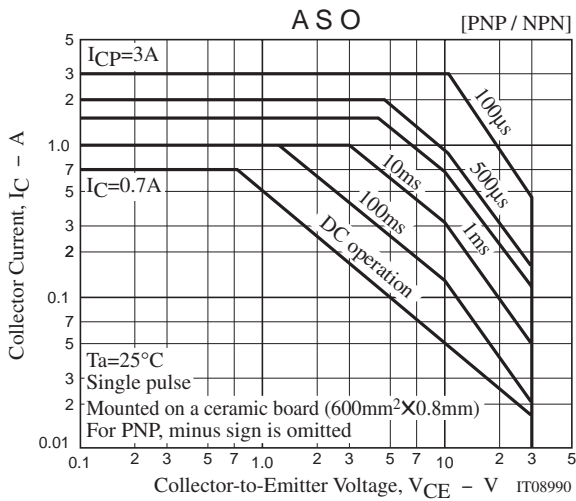
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