



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH6544 — NPN Epitaxial Planar Silicon Transistor

# Inverter Circuit / Driver Applications

### Applications

- Relay drivers, lamp drivers, motor drivers.

### Features

- Composite type with an NPN transistor contained in one package facilitating high-density mounting.
- Ultrasmall package facilitates miniaturization in end products.

### Specifications

#### Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		60	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		5	V
Collector Current	I <sub>C</sub>		500	mA
Collector Current (Pulse)	I <sub>CP</sub>		1.5	A
Collector Dissipation	P <sub>C</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm) 1unit	0.5	W
Total Power Dissipation	P <sub>T</sub>	When mounted on ceramic substrate (600mm <sup>2</sup> ×0.8mm)	0.55	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

#### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0A			100	nA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0A			100	nA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA	300		800	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA		500		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, f=1MHz		2.8		pF

Marking : ES

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# MCH6544

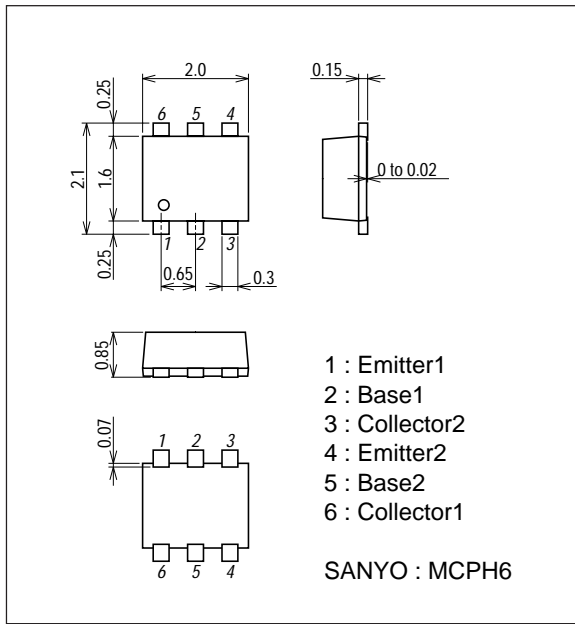
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100mA, I_B=10mA$		50	100	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100mA, I_B=10mA$		0.9	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0A$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0A$	5			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		340		ns
Fall Time	$t_f$	See specified Test Circuit.		55		ns

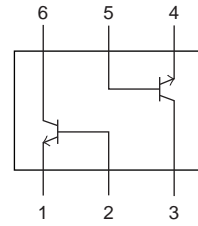
## Package Dimensions

unit : mm (typ)

7022A-011



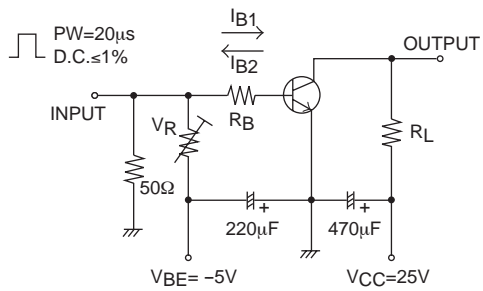
## Electrical Connection



- 1 : Emitter1
- 2 : Base1
- 3 : Collector2
- 4 : Emitter2
- 5 : Base2
- 6 : Collector1

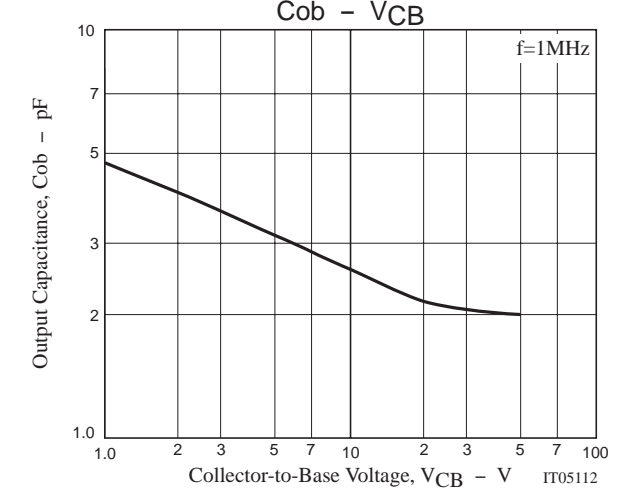
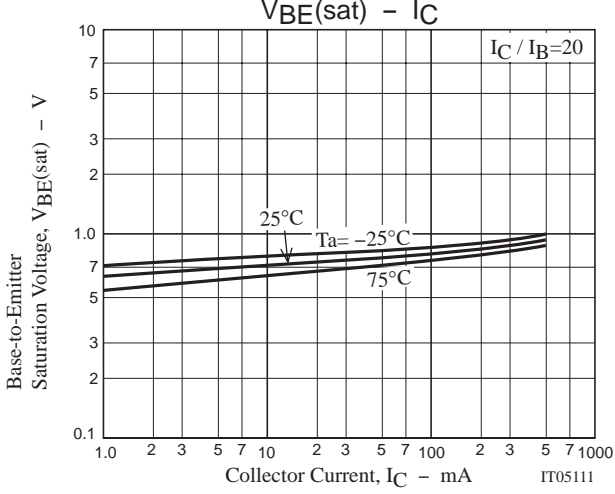
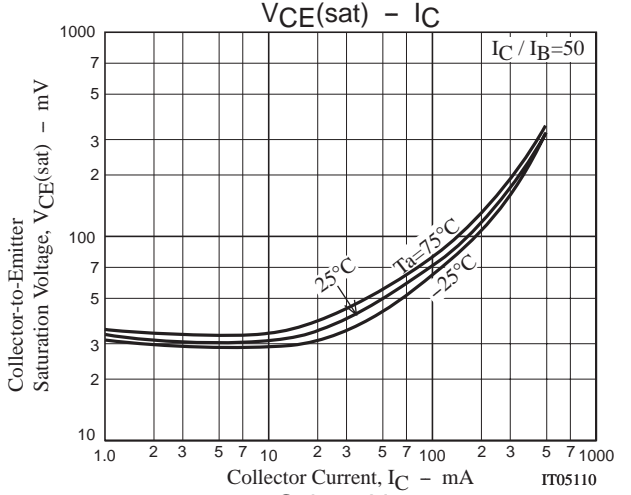
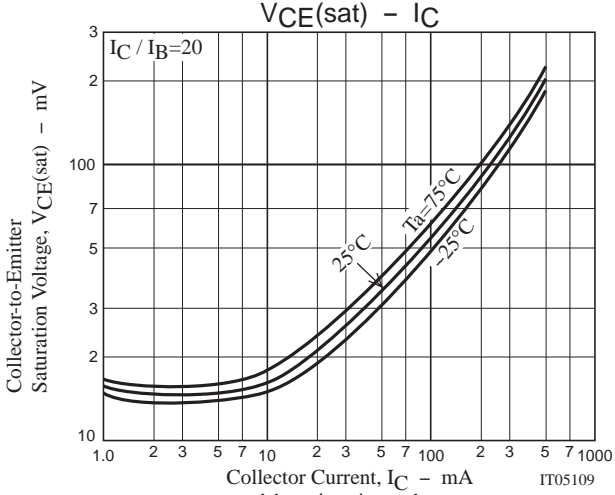
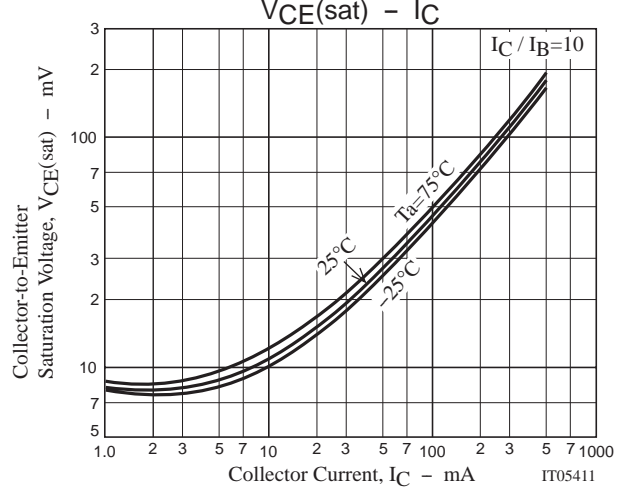
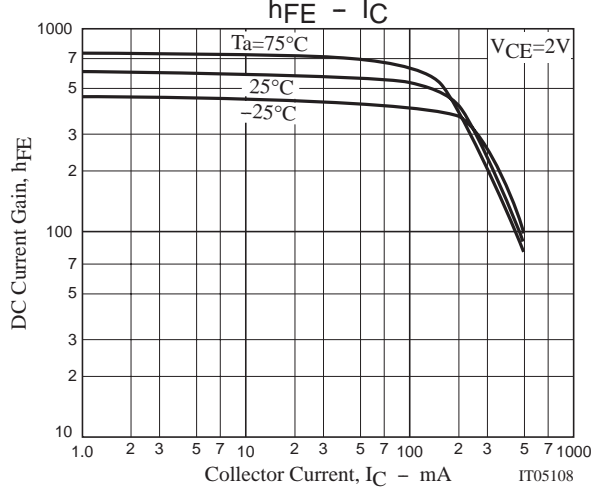
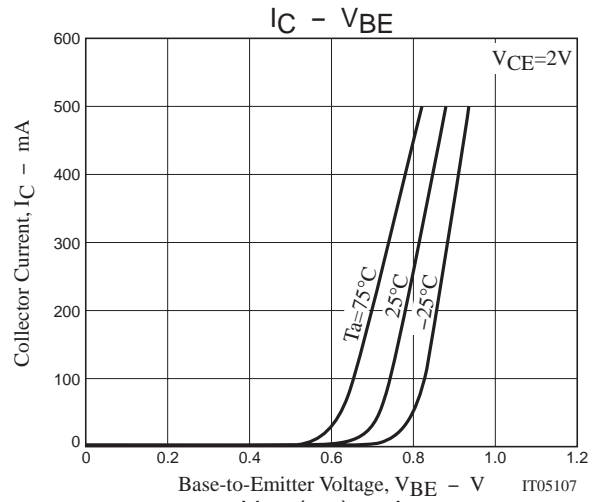
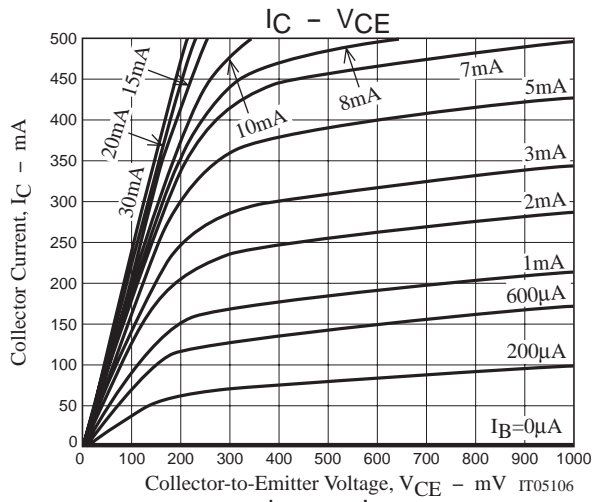
Top view

## Switching Time Test Circuit

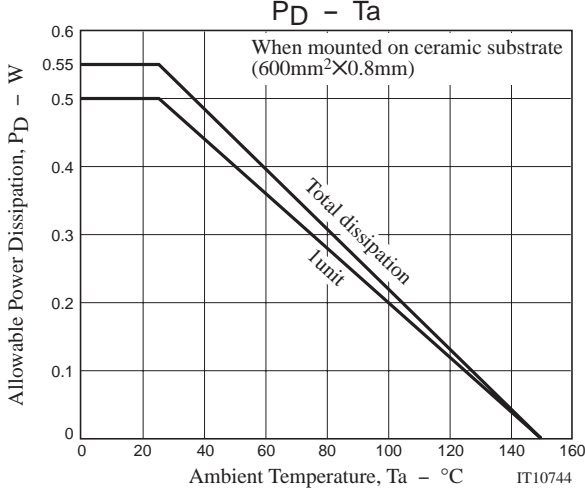
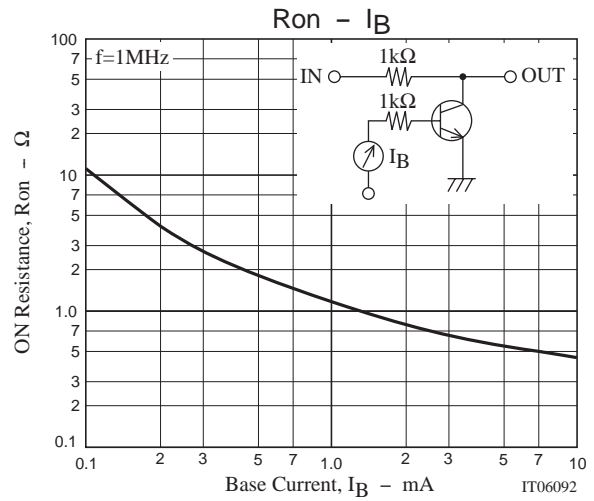
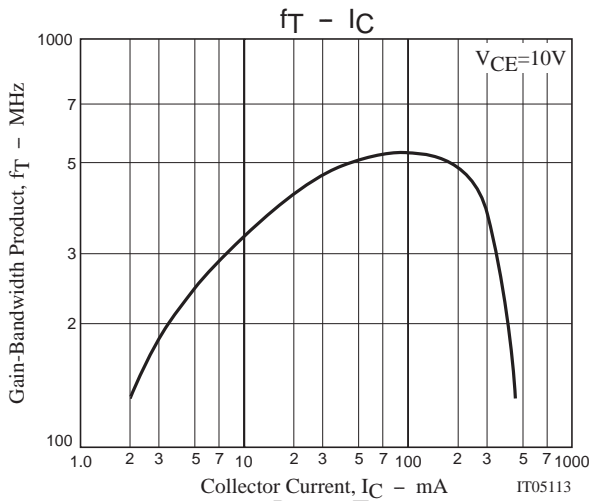


$$I_C = 20I_{B1} = -20I_{B2} = 200mA$$

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