



MCH6103 / MCH6203

PNP / NPN Epitaxial Planar Silicon Transistors

DC / DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers, flash.

Features

- Adoption of MBIT processes.
- High current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.
- Ultrasmall package facilitates miniaturization in end products (mounting height : 0.85mm).
- High allowable power dissipation.

Specifications () : MCH6103

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		(-50)80	V
Collector-to-Emitter Voltage	V _{CES}		(-50)80	V
	V _{CEO}		(-)50	V
Emitter-to-Base Voltage	V _{EBO}		(-)5	V
Collector Current	I _C		(-)1.0	A
Collector Current (Pulse)	I _{CP}		(-)3	A
Base Current	I _B		200	mA
Collector Dissipation	P _C	Mounted on a ceramic board (600mm ² X0.8mm)	1.0	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 _{CBO}	V _{CB} =(-)40V, 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} =(-)2V, I _C =(-)100mA	200		560	
Gain-Bandwidth Product	f _T	V _{CE} =(-)10V, I _C =(-)300mA		420		MHz
Output Capacitance	C _{ob}	V _{CB} =(-)10V, f=1MHz		(9)6		pF

Marking : MCH6103 : AC, MCH6203 : CC

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■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

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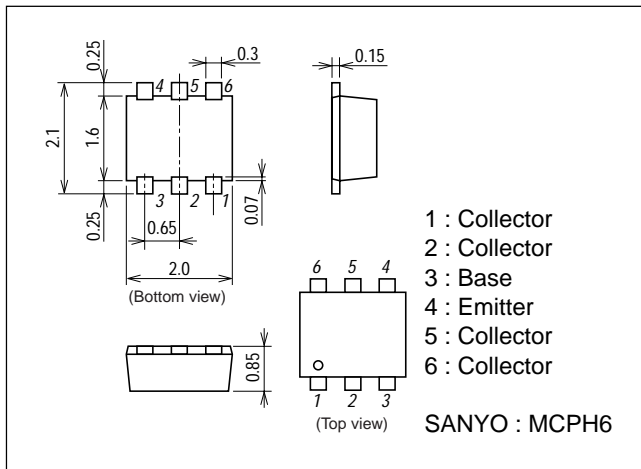
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=(-)500mA, I_B=(-)10mA$		(-280)130	(-430)190	mV
	$V_{CE(sat)2}$	$I_C=(-)300mA, I_B=(-)6mA$		(-145)90	(-220)135	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-0.81)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-50)80			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=(-)100\mu A, R_{BE}=0$	(-50)80			V
	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-50)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-5)			V
Turn-ON Time	t_{on}	See specified Test Circuit.		(36)38		ns
Storage Time	t_{stg}	See specified Test Circuit.		(173)332		ns
Fall Time	t_f	See specified Test Circuit.		(28)40		ns

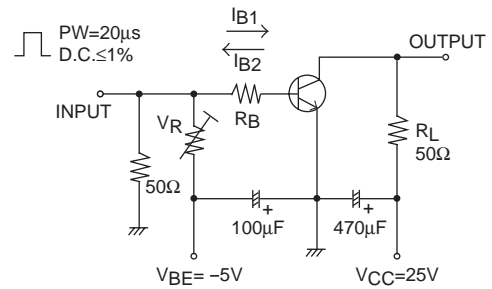
Package Dimensions

unit : mm

2177A

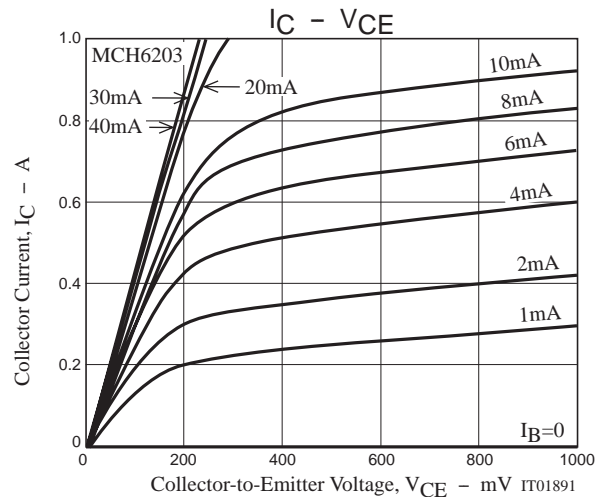
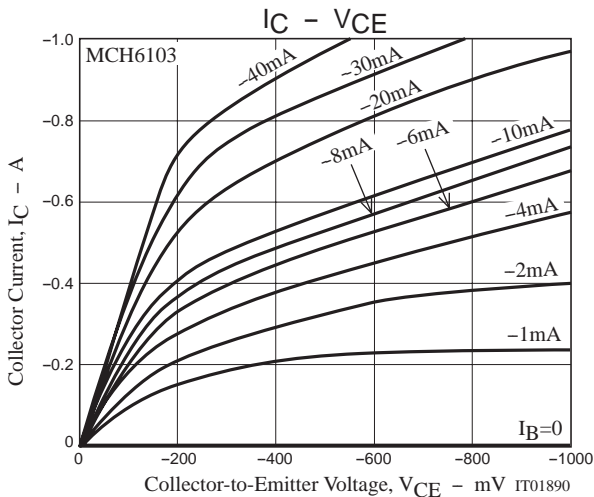


Switching Time Test Circuit

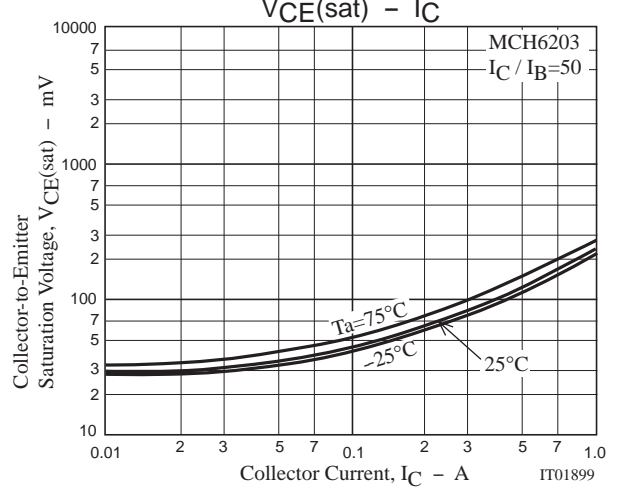
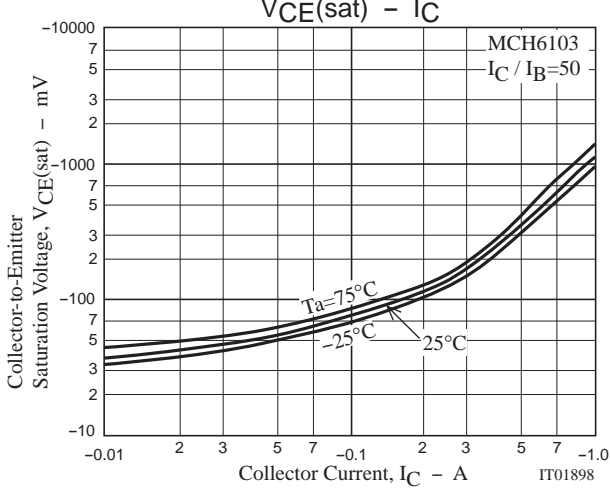
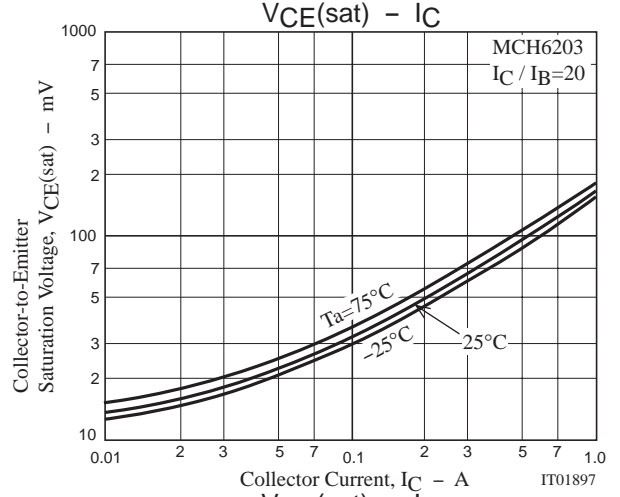
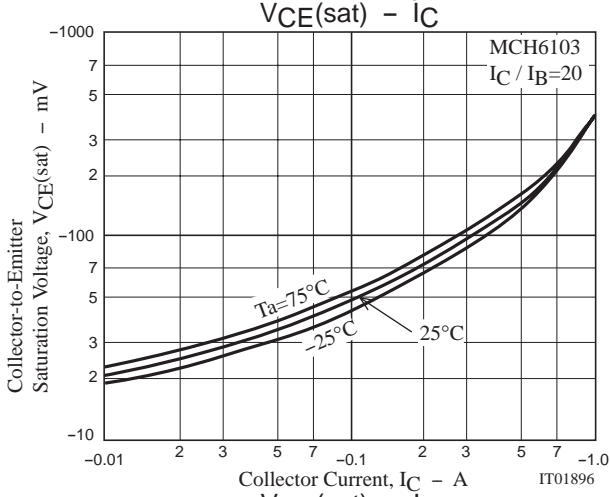
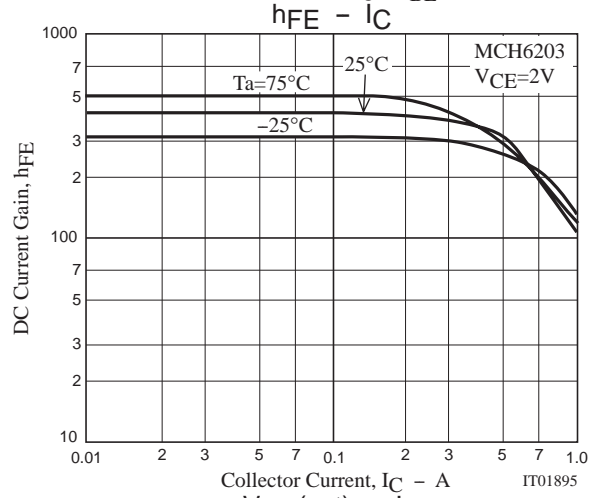
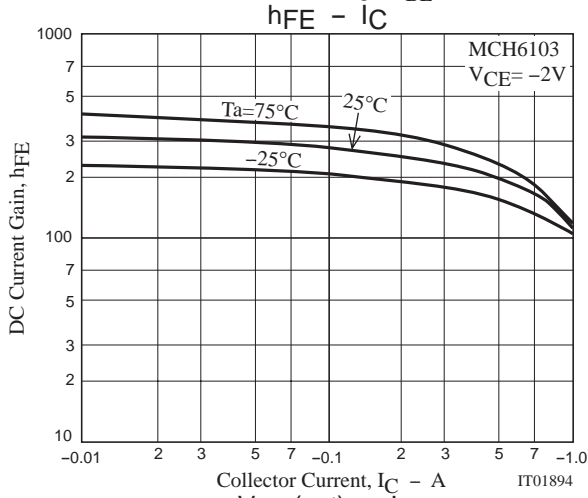
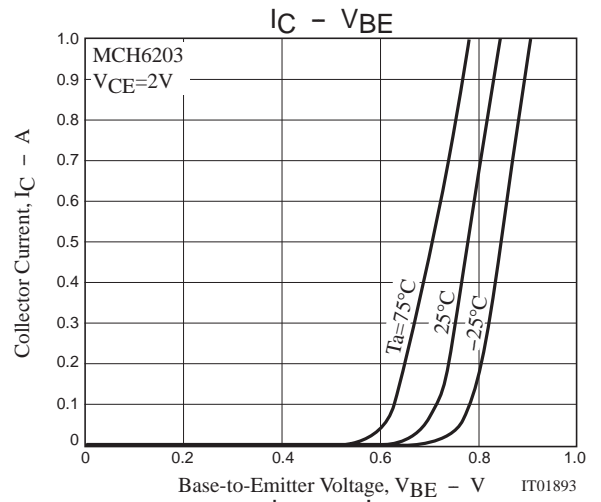
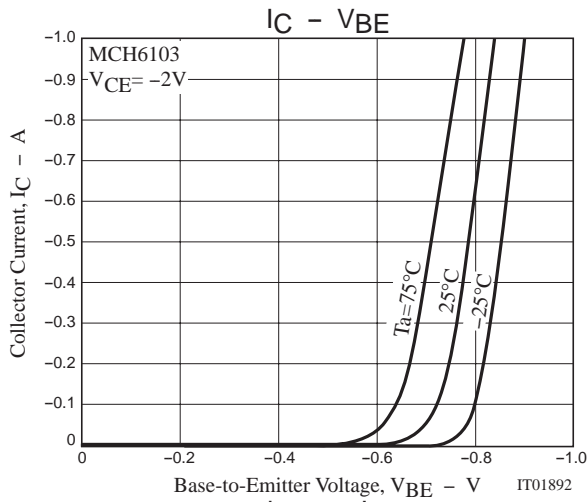


$$I_C = 20I_{B1} = -20I_{B2} = 500mA$$

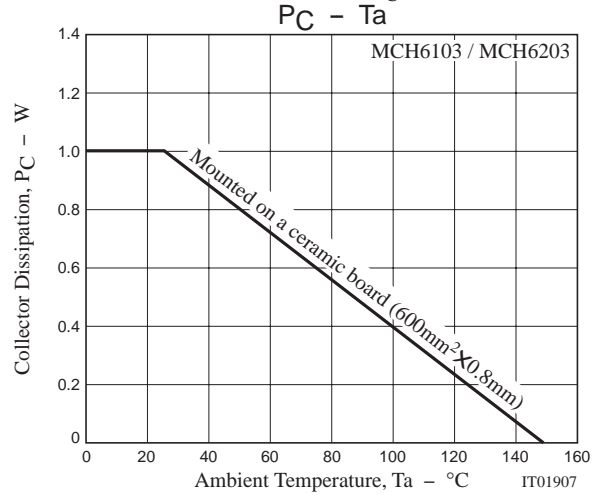
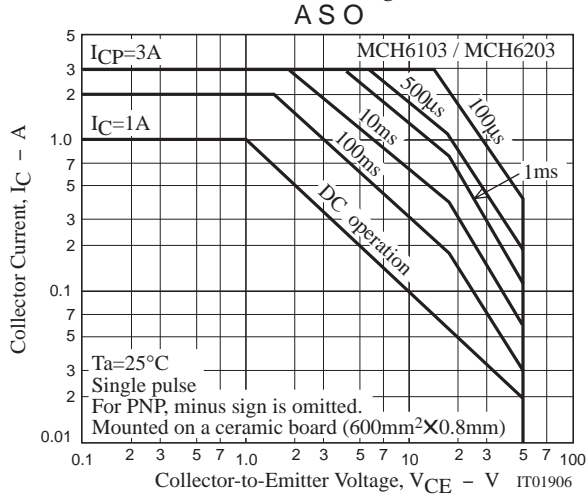
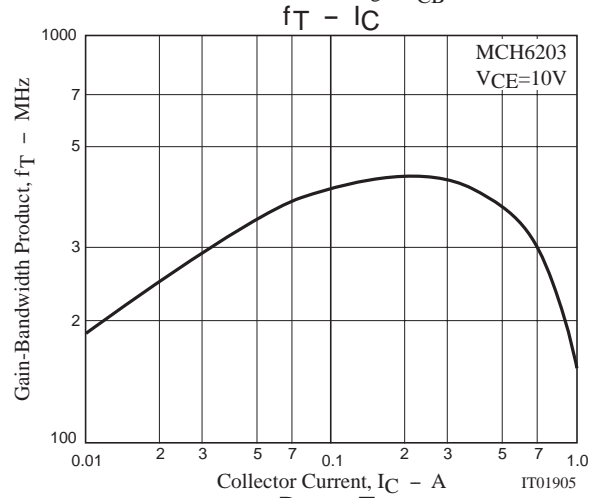
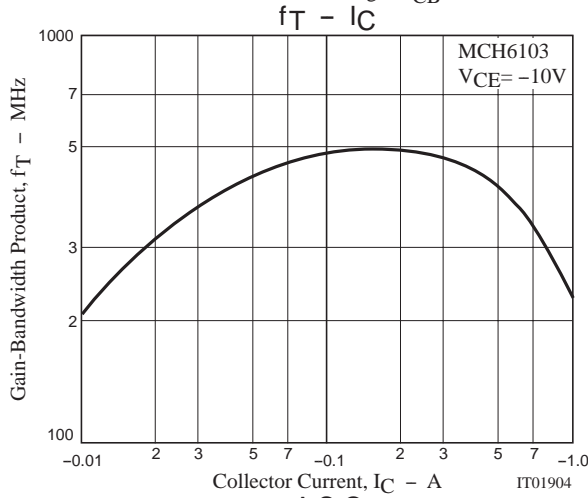
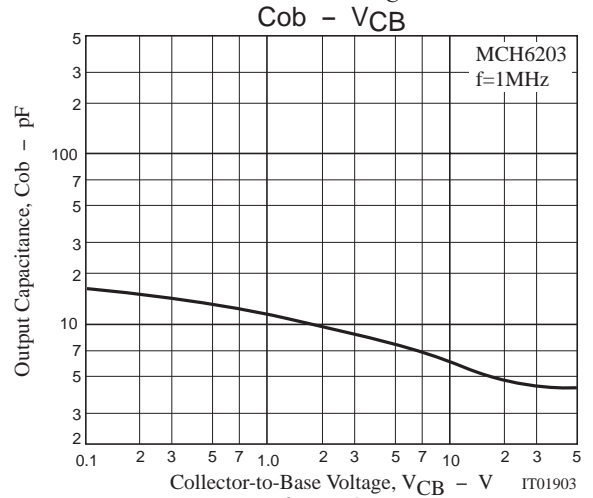
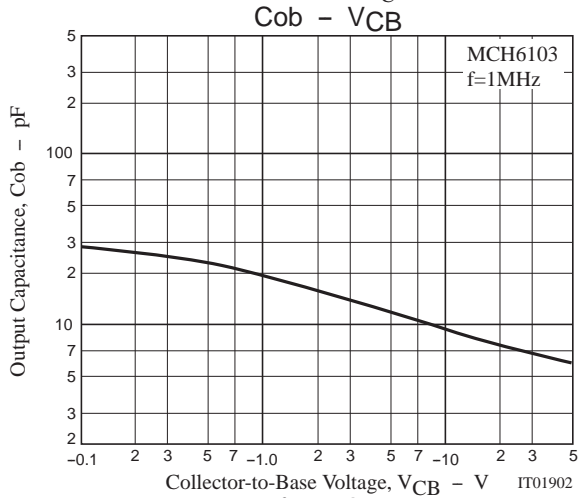
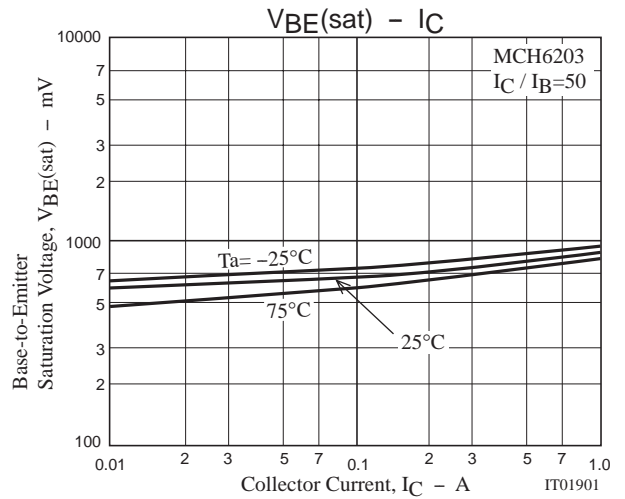
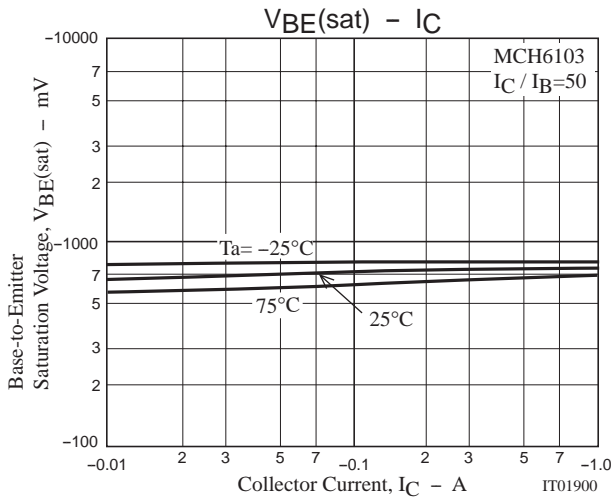
For PNP, the polarity is reversed.



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