



MCH6103/MCH6203

DC/DC Converter Applications

Applications

- Relay drivers, lamp drivers, motor drivers and strobes.

Features

- Adoption of MBIT processes.
- Large 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_{CBO}		(-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 ×0.8mm)	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

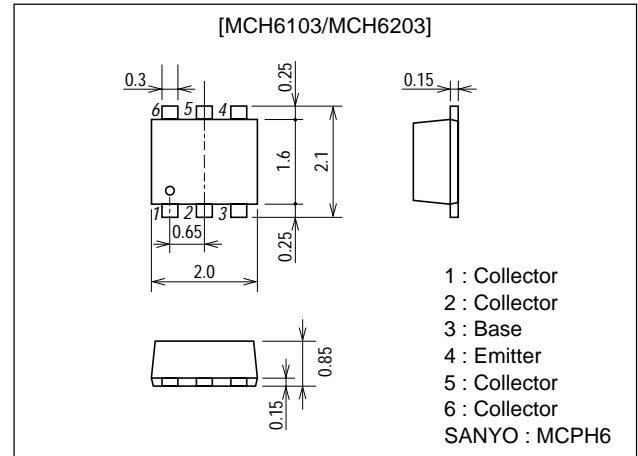
Marking : MCH6103 : AC, MCH6203 : CC

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Package Dimensions

unit:mm

2177



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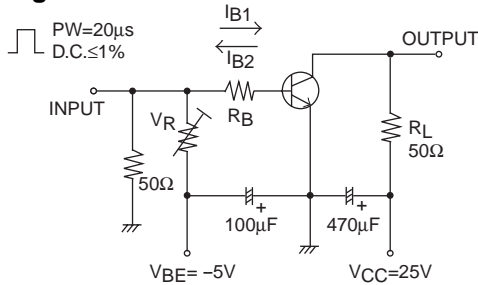
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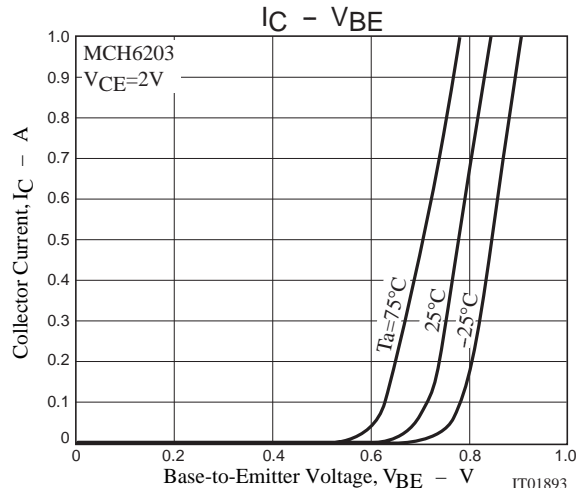
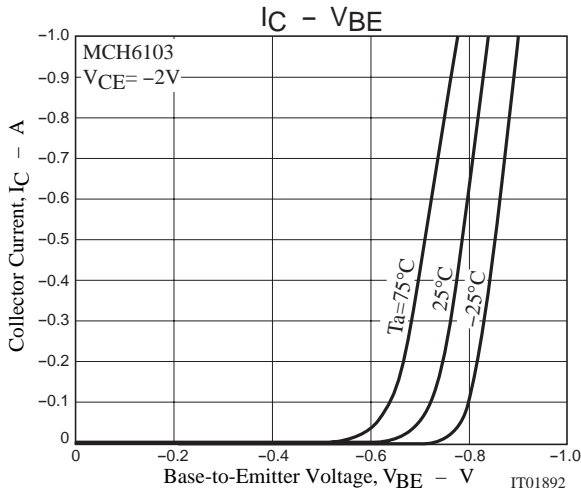
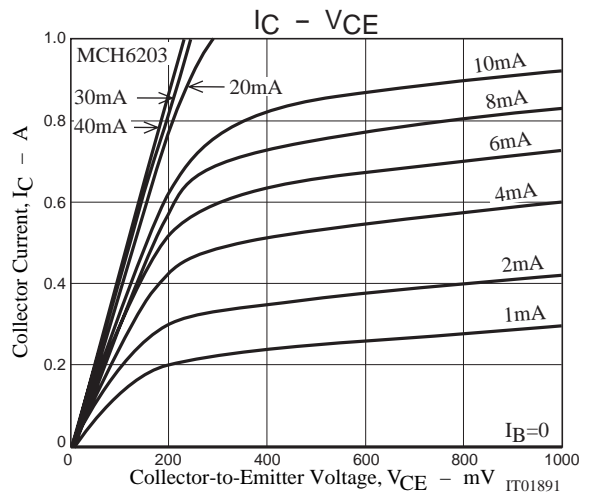
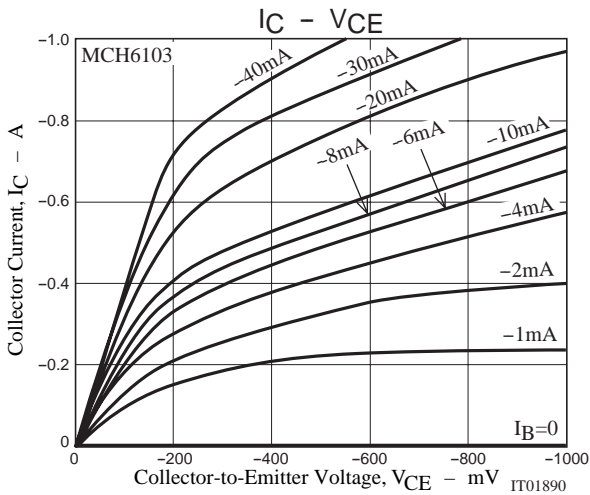
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500\text{mA}, I_B=(-)10\text{mA}$		(-280)	(-430)	mV
				130	190	mV
				(-145)	(-220)	mV
		$I_C=(-)300\text{mA}, I_B=(-)6\text{mA}$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

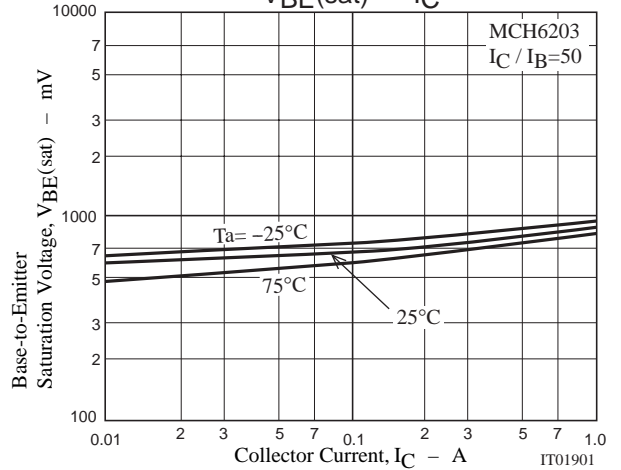
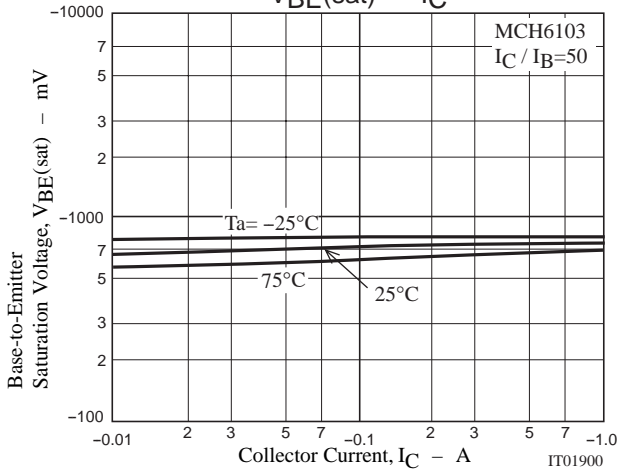
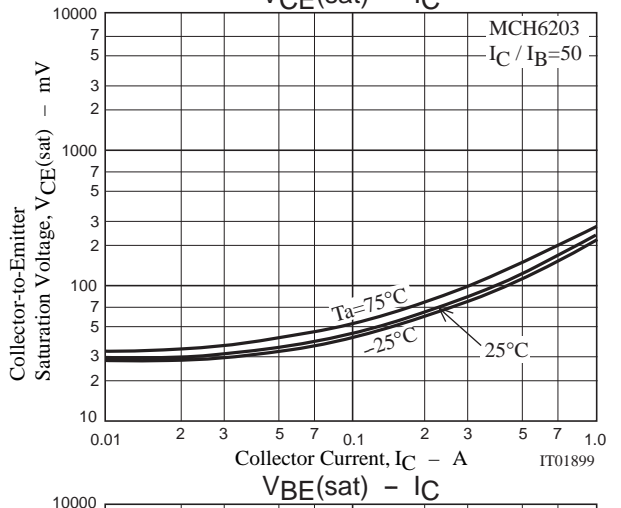
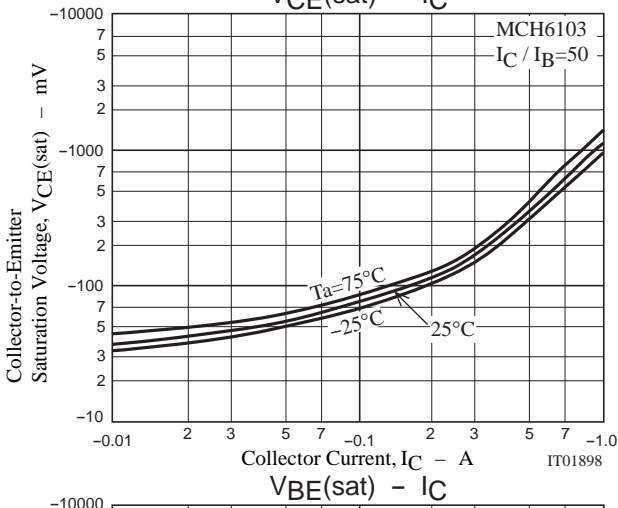
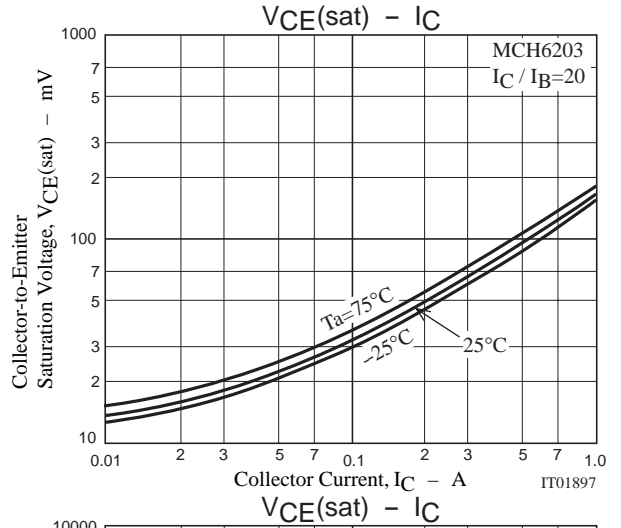
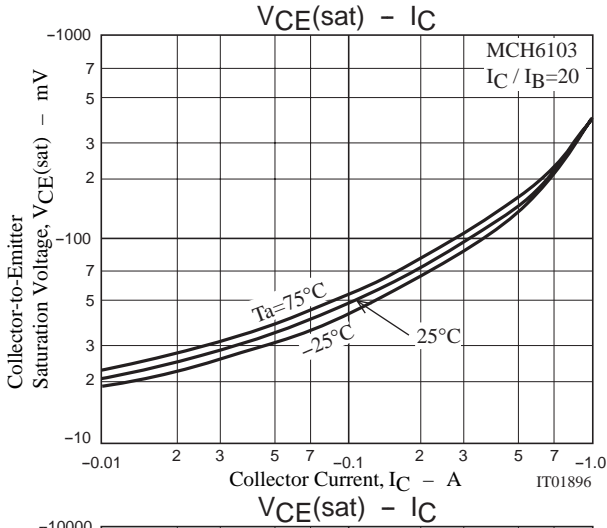
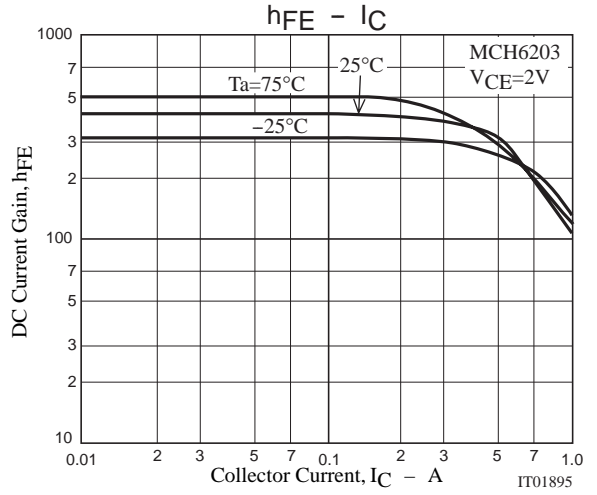
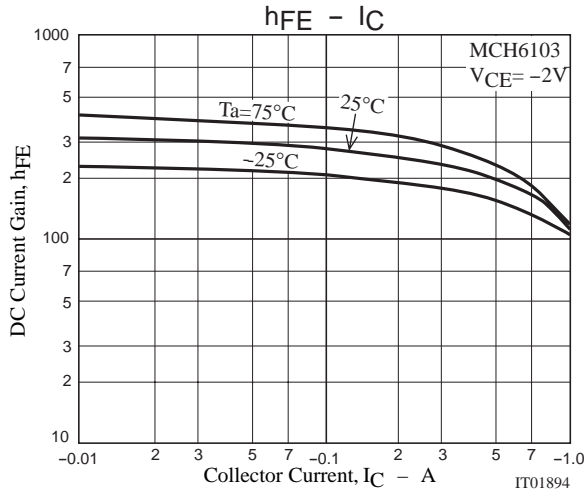
Switching Time Test Circuit



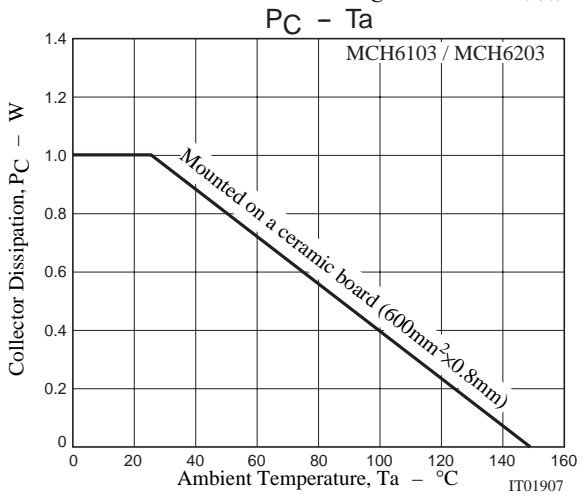
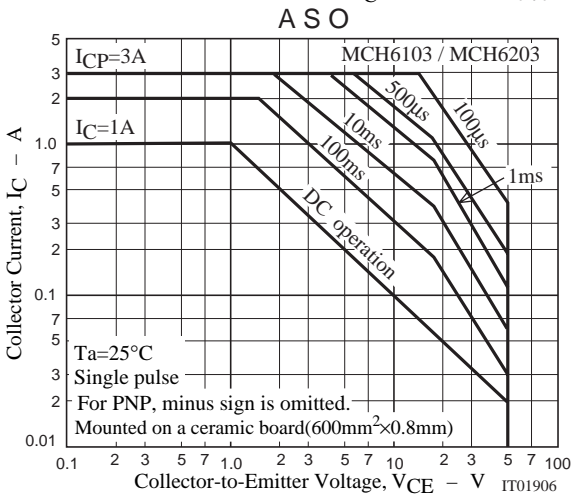
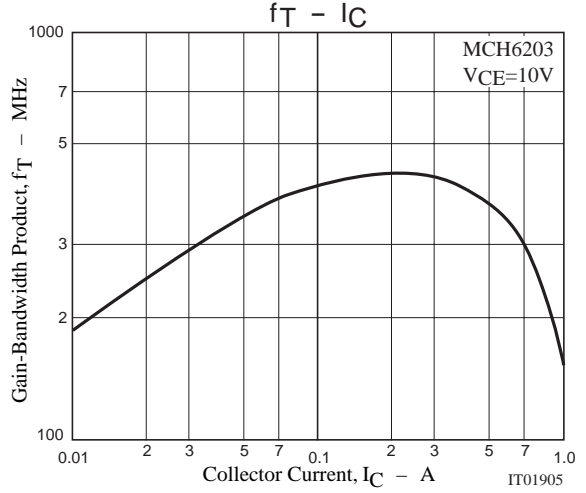
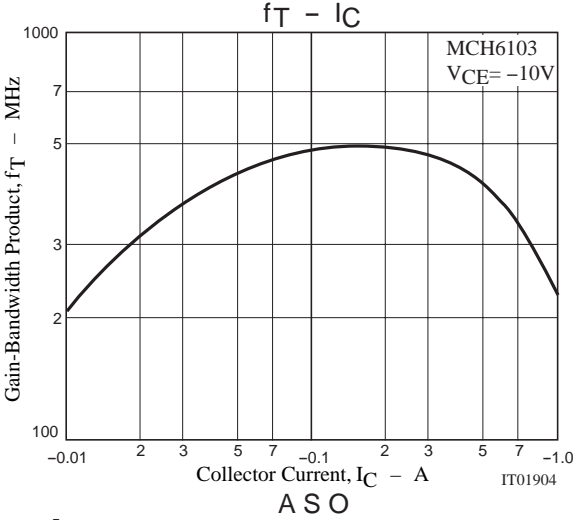
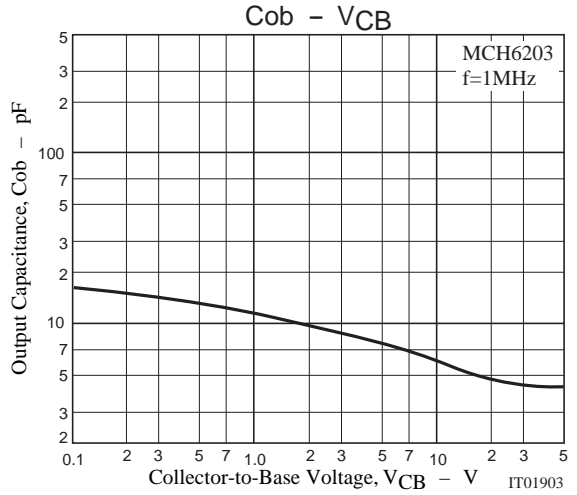
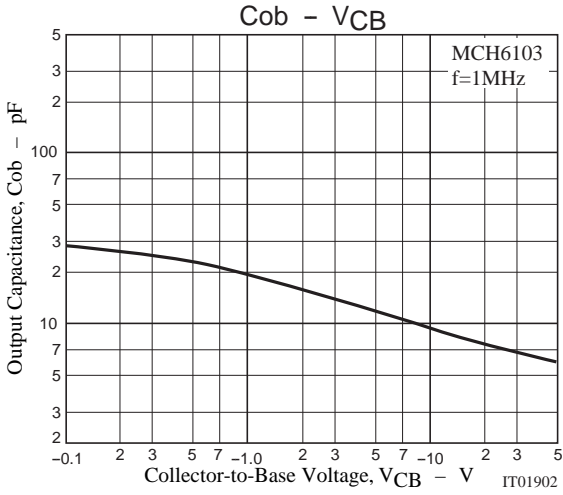
$I_C = 20I_{B1} = -20I_{B2} = 500\text{mA}$
For PNP, the polarity is reversed.



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