



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_{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 ×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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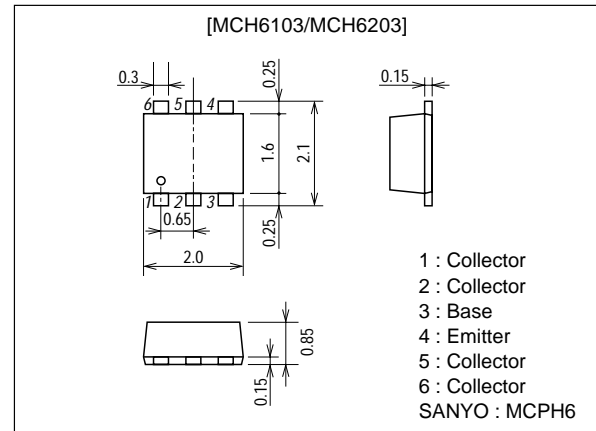
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Package Dimensions

unit:mm

2177

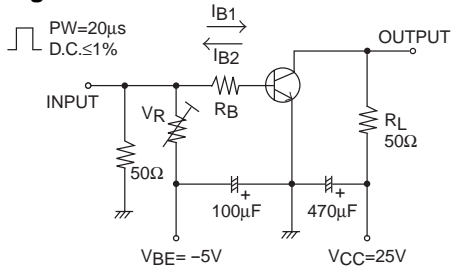


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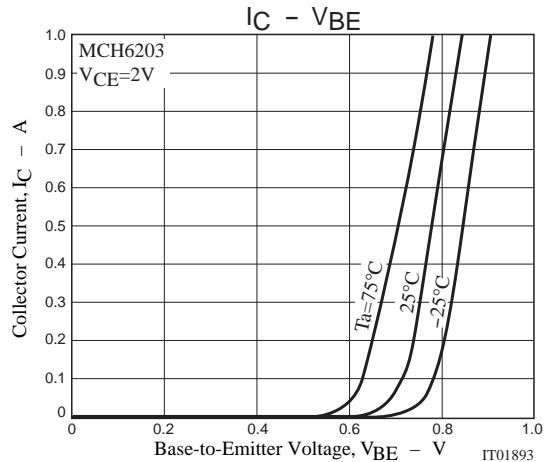
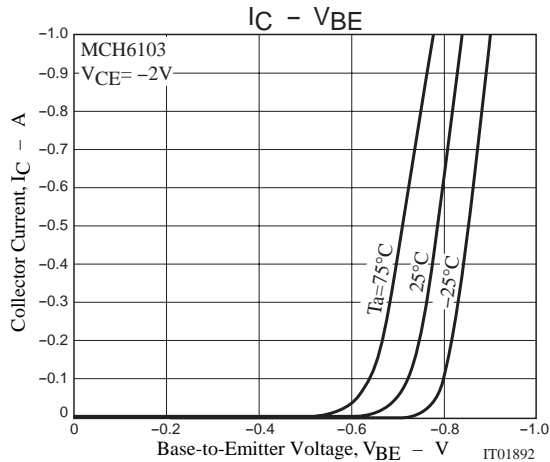
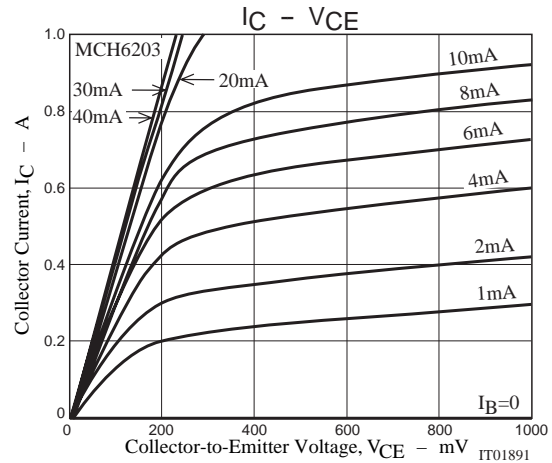
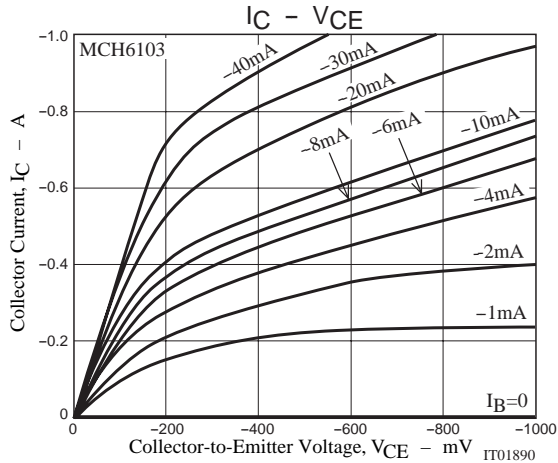
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)500mA, I_B=(-)10mA$		(-280)	(-430)	mV
				130	190	mV
		$I_C=(-)300mA, I_B=(-)6mA$		(-145)	(-220)	mV
				90	135	mV
Base-to-Emitter 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)		V	
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=(-)100\mu A, R_{BE}=0$	80		V	
			(-50)		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)	ns	
				332	ns	
Fall Time	t_f	See specified test circuit.		(28)40	ns	

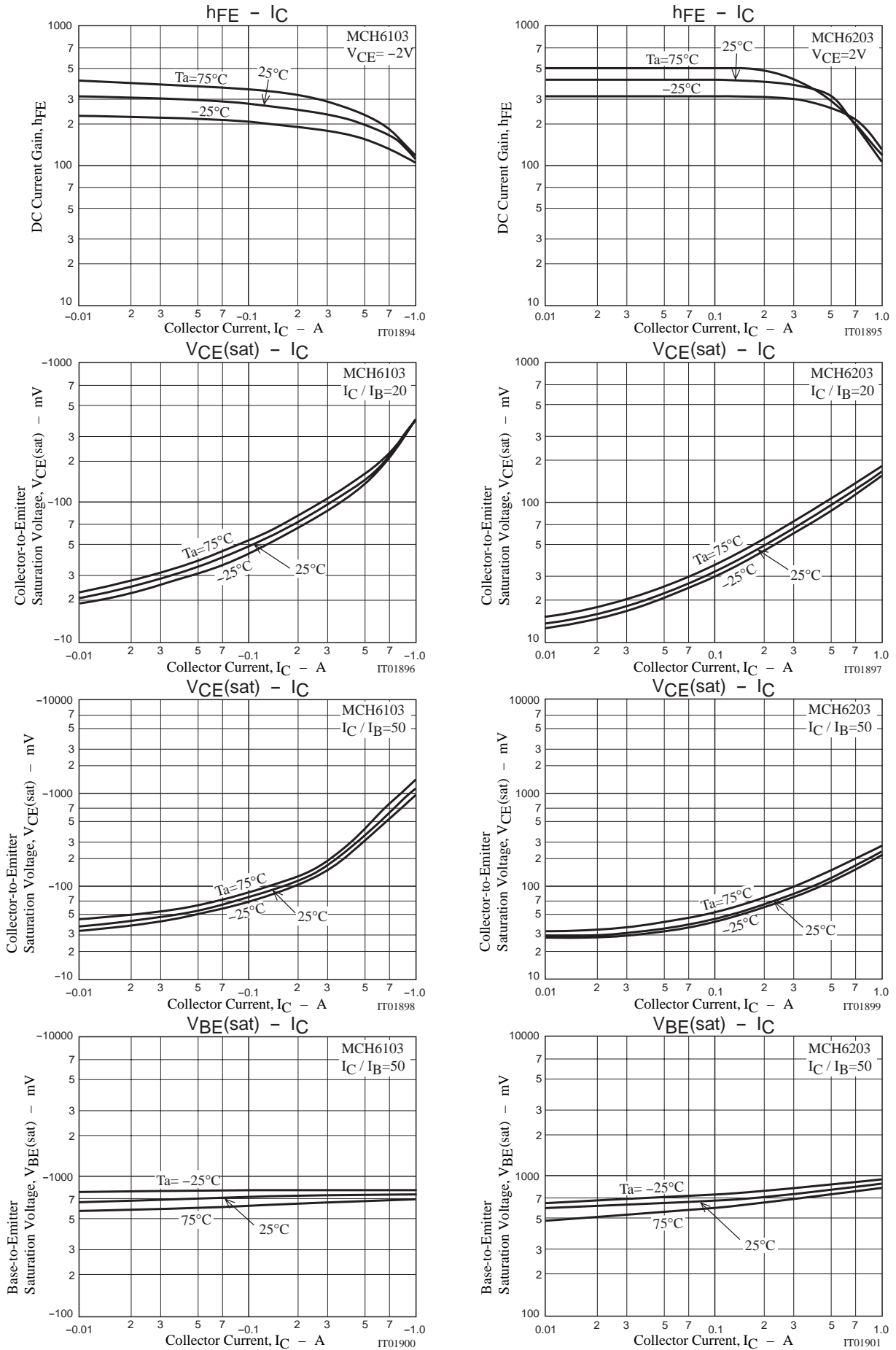
Switching Time Test Circuit



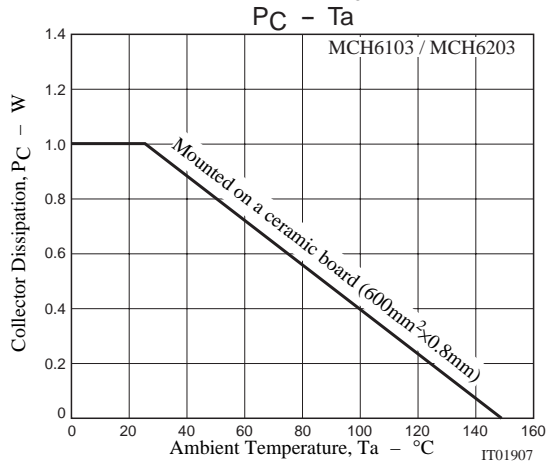
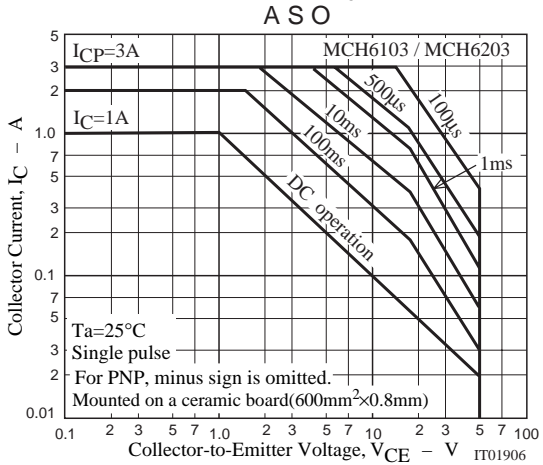
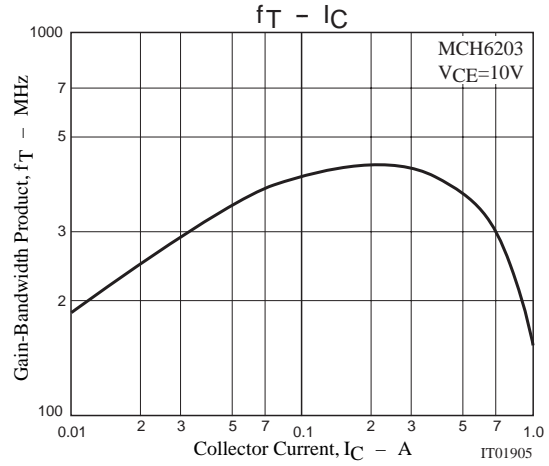
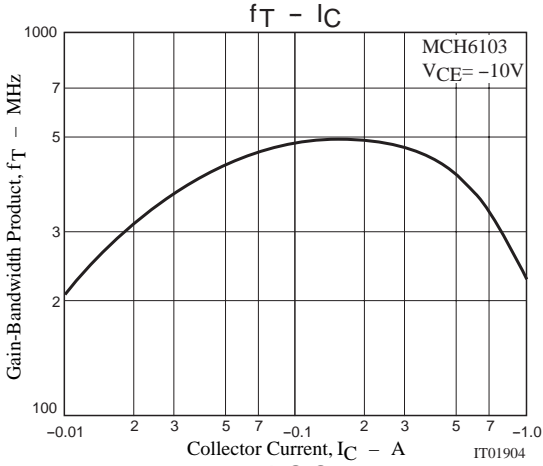
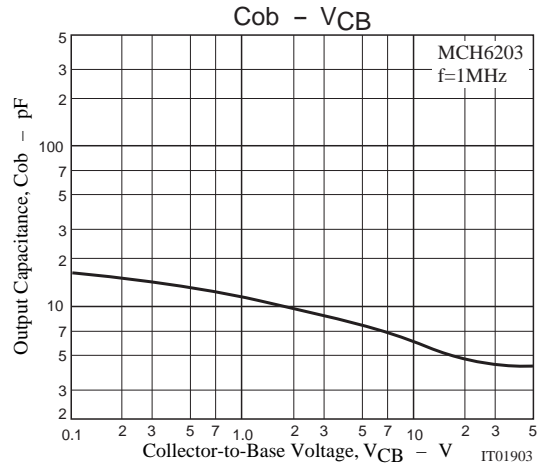
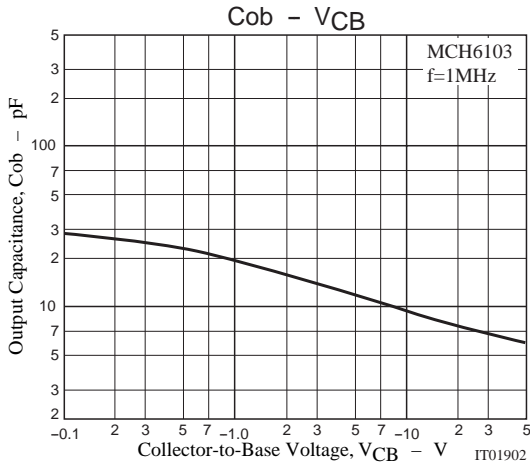
$I_C=20I_{B1} = -20I_{B2}=500mA$
For PNP, the polarity is reversed.



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