

**DC / DC Converter Applications****Applications**

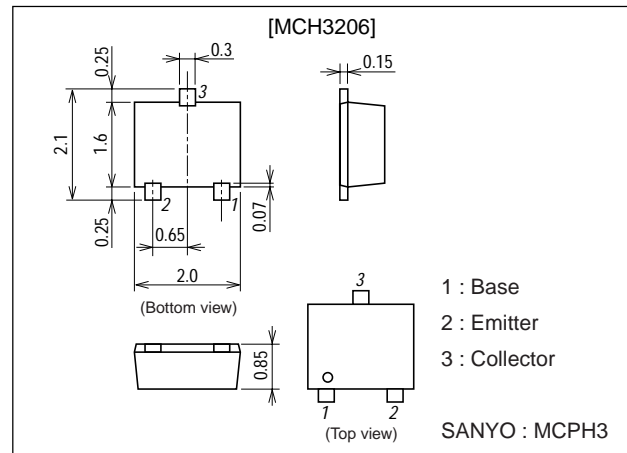
- Relay drivers, lamp drivers, motor drivers, strobes.

Features

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

Package Dimensions

unit : mm
2194A

**Specifications****Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		15	V
Collector-to-Emitter Voltage	V_{CEO}		15	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}		5	A
Base Current	I_B		600	mA
Collector Dissipation	P_C	Mounted on a ceramic board(600mm ² X0.8mm)	0.8	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}	$V_{CB}=12V, I_E=0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=2V, I_C=500mA$	200		560	
Gain-Bandwidth Product	f_T	$V_{CE}=2V, I_C=500mA$		380		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		13		pF

Marking : CF

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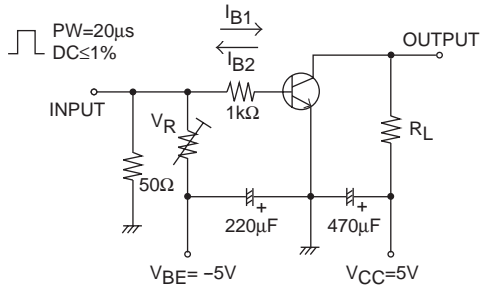
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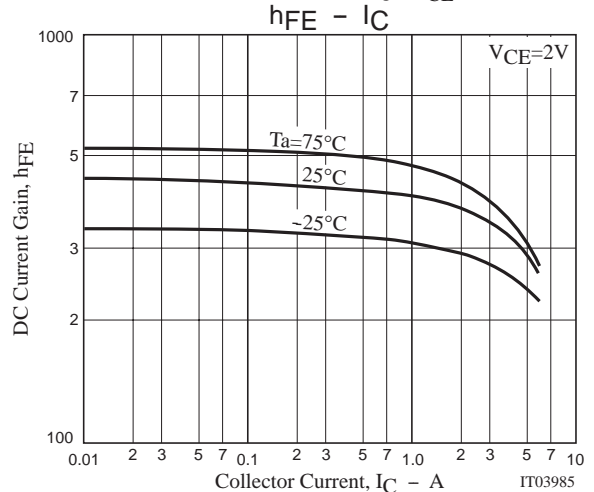
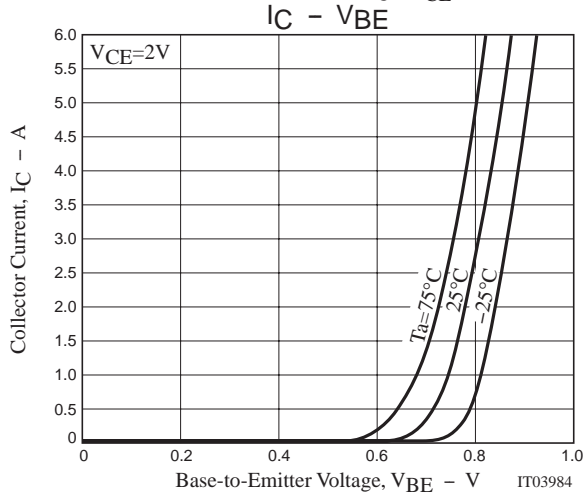
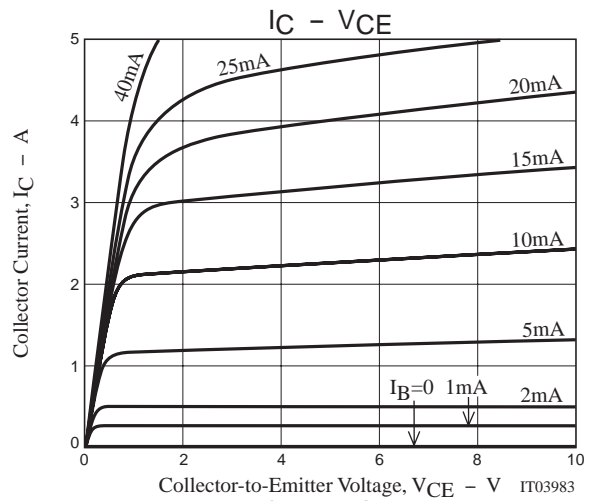
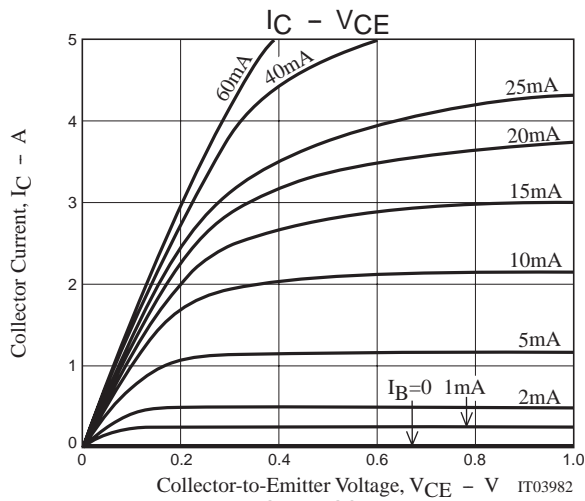
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)1}$	$I_C=1.5A, I_B=30mA$		100	150	mV
	$V_{CE(sat)2}$	$I_C=3A, I_B=60mA$		180	270	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=30mA$		0.85	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	15			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.		30		ns
Storage Time	t_{stg}	See specified Test Circuit.		210		ns
Fall Time	t_f	See specified Test Circuit.		11		ns

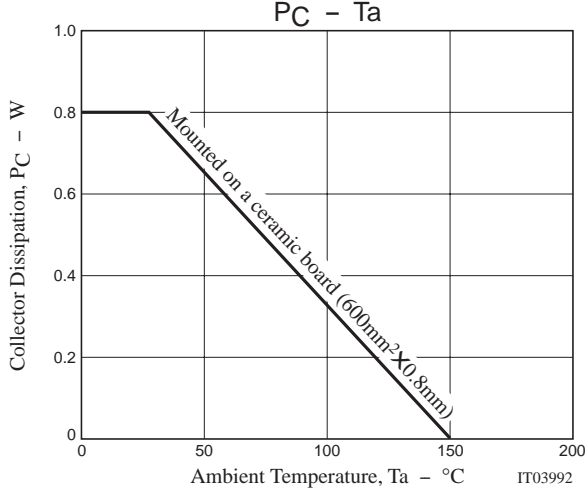
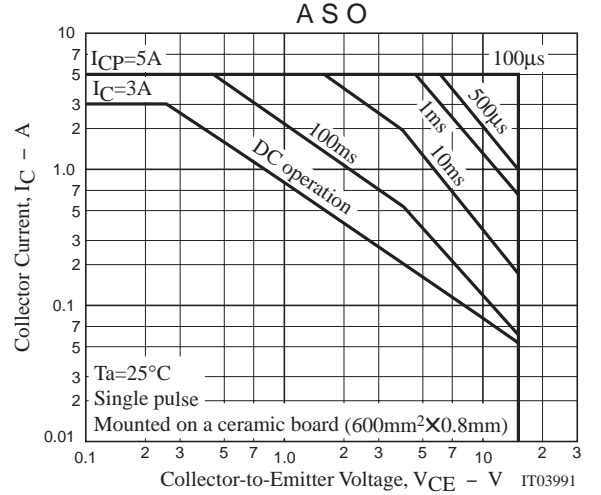
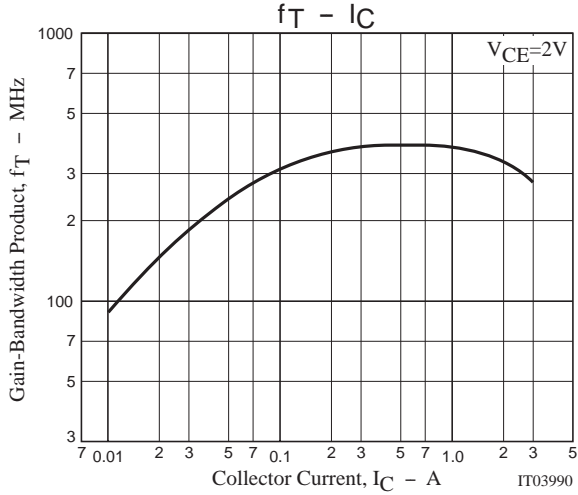
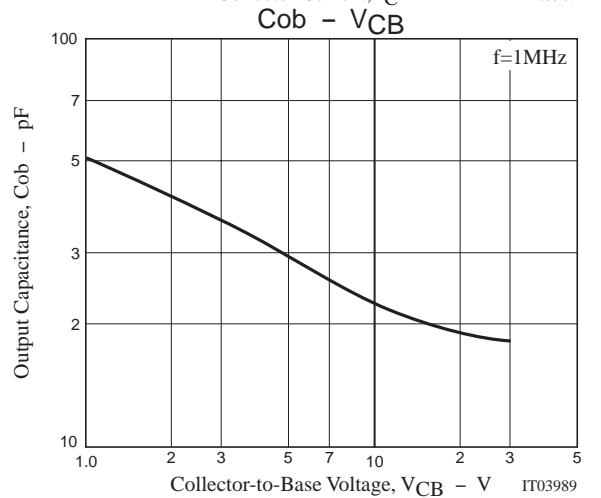
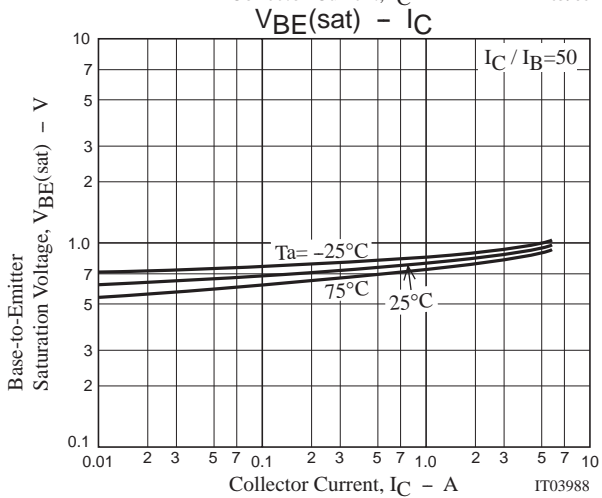
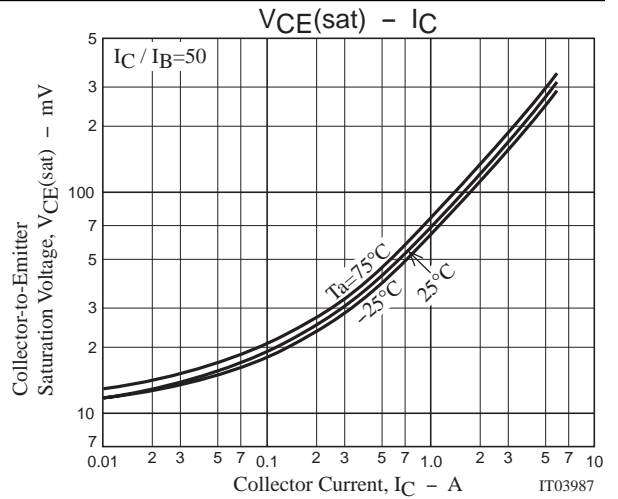
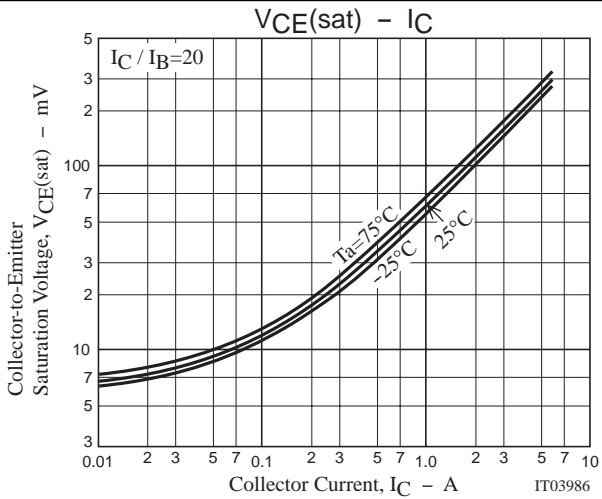
Switching Time Test Circuit



$$I_C = 20I_{B1} = -20I_{B2} = 1.5A$$



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