



MCH3219

 — NPN Epitaxial Planar Silicon Transistor

DC / DC Converter Applications

Applications

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

Features

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

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		100	V
Collector-to-Emitter Voltage	V_{CES}		100	V
	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		6	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 X0.8m)	0.7	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=40\text{V}, I_E=0$			0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=2\text{V}, I_C=100\text{mA}$	250		400	
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=300\text{mA}$		420		MHz

Marking : CP

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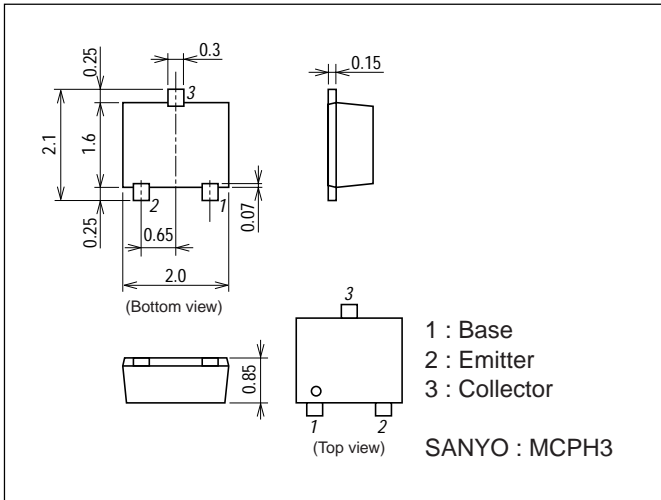
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V _{CB} =10V, f=1MHz		6		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =500mA, I _B =10mA		105	160	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =500mA, I _B =10mA		0.81	1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA, I _E =0	100			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CES}	I _C =100μA, R _{BE} =0	100			V
	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	50			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =10μA, I _C =0	6			V
Turn-ON Time	t _{on}	See specified Test Circuit.		38		ns
Storage Time	t _{stg}	See specified Test Circuit.		332		ns
Fall Time	t _f	See specified Test Circuit.		40		ns

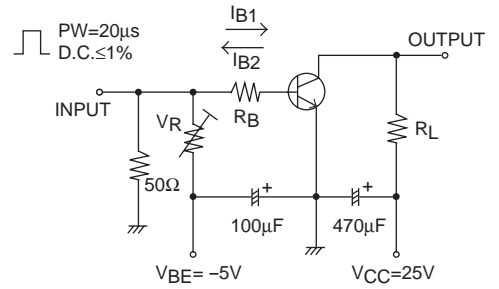
Package Dimensions

unit : mm

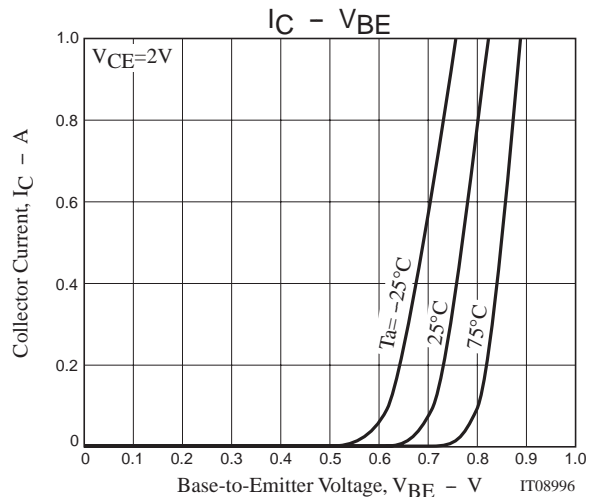
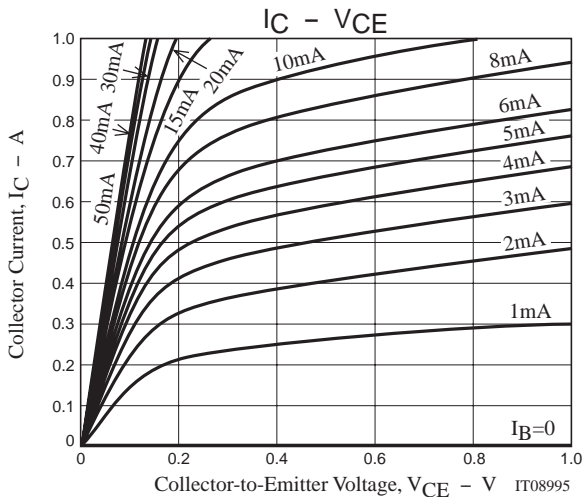
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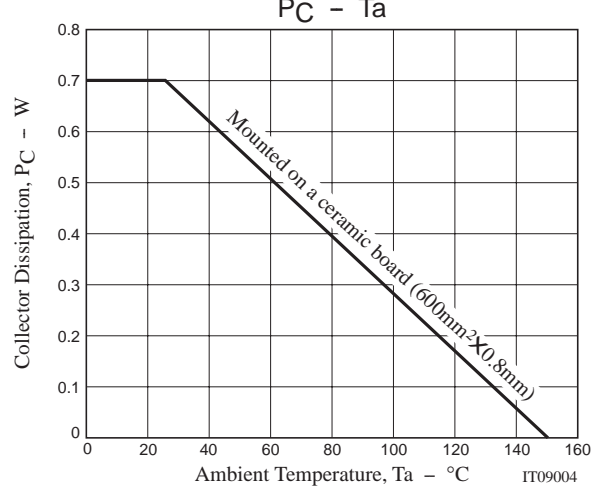
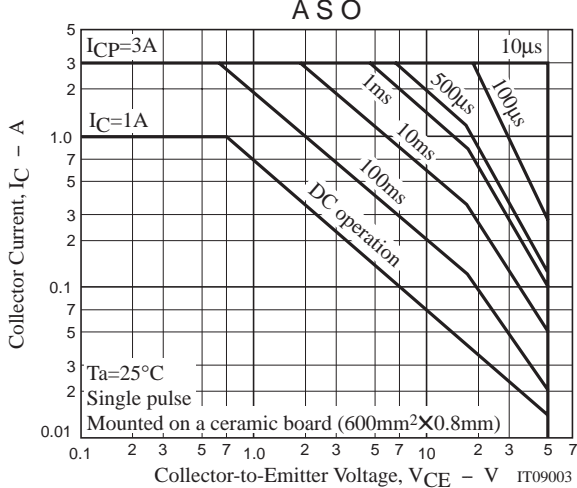
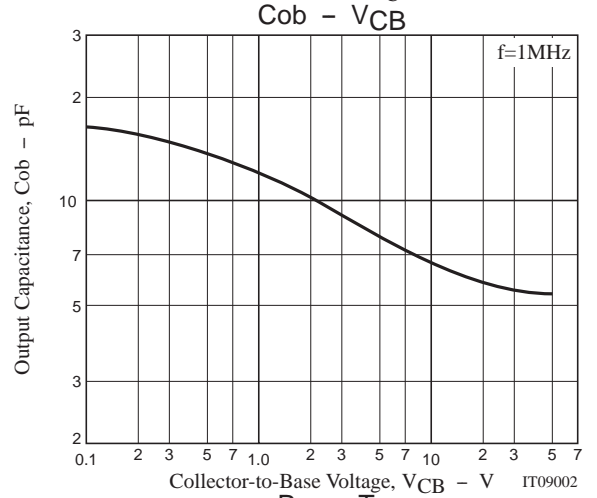
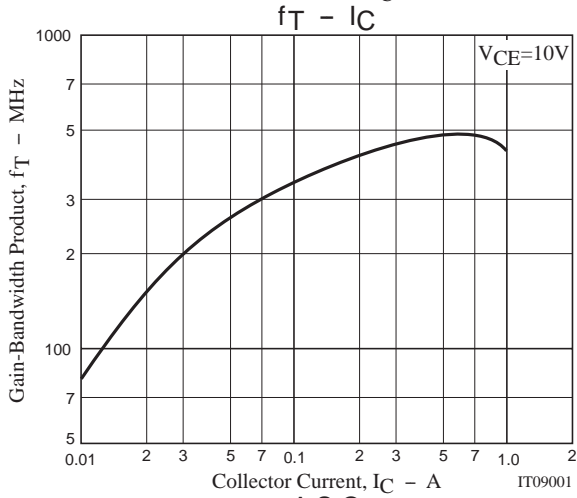
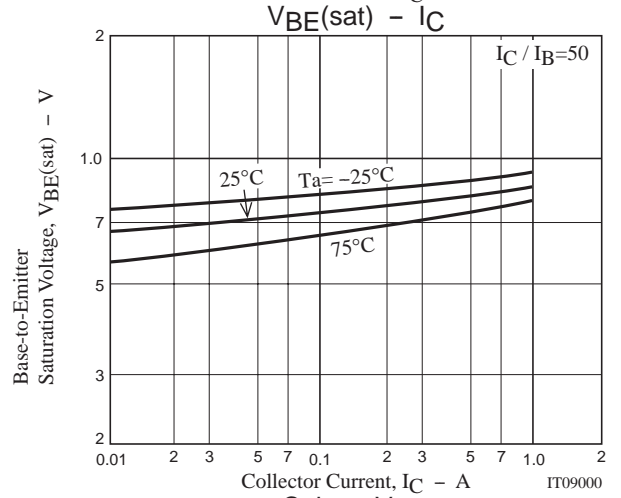
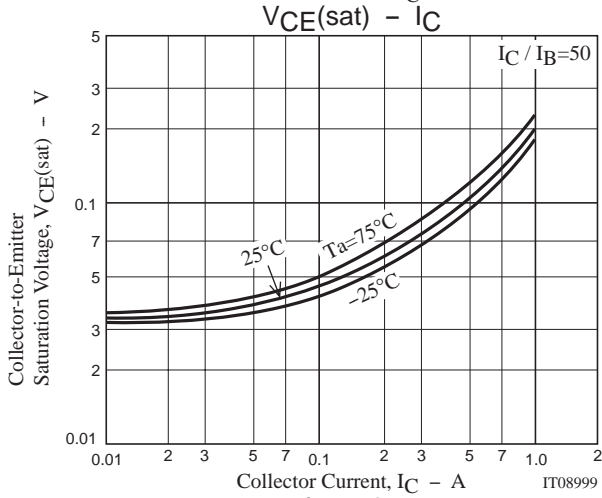
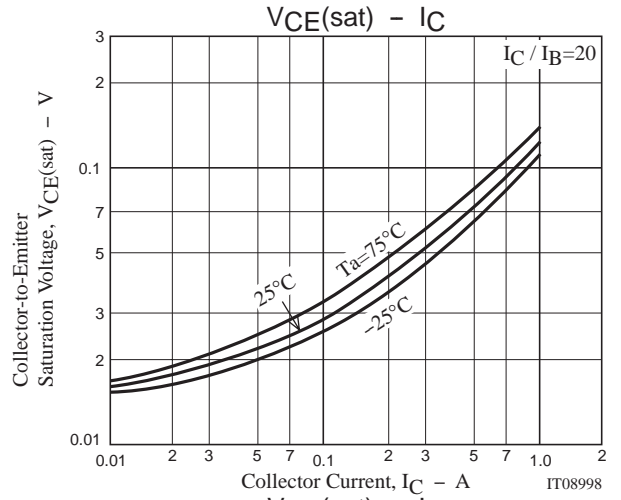
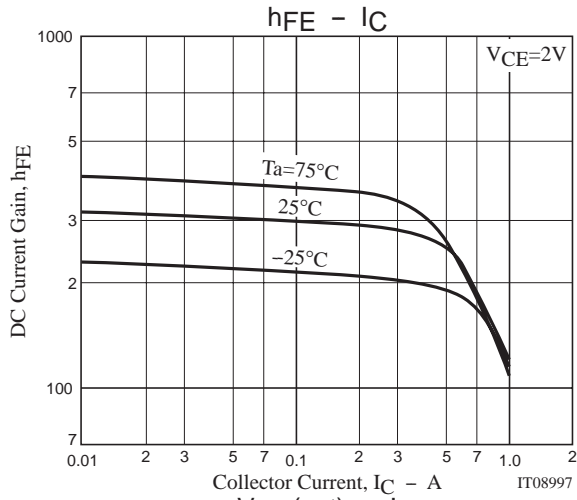
Switching Time Test Circuit



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



MCH3219



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