



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

NPN Epitaxial Planar Silicon Transistor

50C02MH — Low-Frequency General-Purpose Amplifier Applications

Applications

- Low-frequency Amplifier, high-speed switching small motor drive, muting circuit

Features

- Large current capacity
- Low collector-to-emitter saturation voltage (resistance) : $R_{CE(sat)}$ typ=175m Ω [$I_C=0.5A$, $I_B=50mA$]
- Ultrasmall package facilitates miniaturization in end products
- Small ON-resistance (R_{on})

Specifications

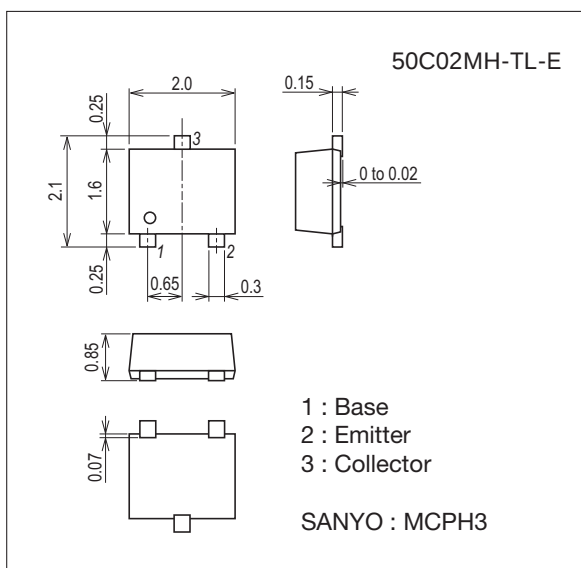
Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		60	V
Collector-to-Emitter Voltage	V_{CEO}		50	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		500	mA
Collector Current (Pulse)	I_{CP}		1.0	A
Collector Dissipation	P_C	When mounted on ceramic substrate (600mm ² ×0.8mm)	600	mW
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

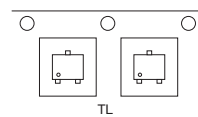
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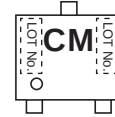
Product & Package Information

- Package : MCPH3
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

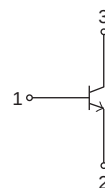
Packing Type : TL



Marking



Electrical Connection

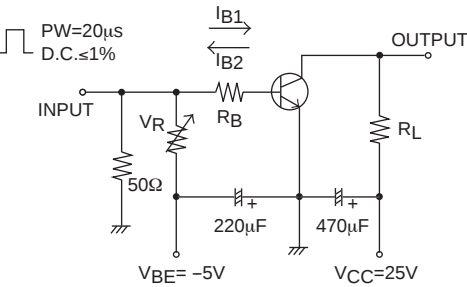


50C02MH

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	ICBO	V _{CB} =40V, I _E =0A			100	nA
Emitter Cutoff Current	IEBO	V _{EB} =4V, I _C =0A			100	nA
DC Current Gain	h _{FE}	V _{CE} =2V, I _C =10mA	300		800	
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =50mA		500		MHz
Output Capacitance	Cob	V _{CB} =10V, f=1MHz		2.8		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =100mA, I _B =10mA		50	100	mV
Base-to-Emitter Saturation Voltage	V _{BE(sat)}	I _C =100mA, I _B =10mA		0.9	1.2	V
Collector-to-Base Breakdown Voltage	V _{(BR)CBO}	I _C =10μA, I _E =0A	60			V
Collector-to-Emitter Breakdown Voltage	V _{(BR)CEO}	I _C =1mA, R _{BE} =∞	50			V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =10μA, I _C =0A	5			V
Turn-ON Time	t _{on}	See specified Test Circuit.		30		ns
Storage Time	t _{stg}			340		ns
Fall Time	t _f			55		ns

Switching Time Test Circuit

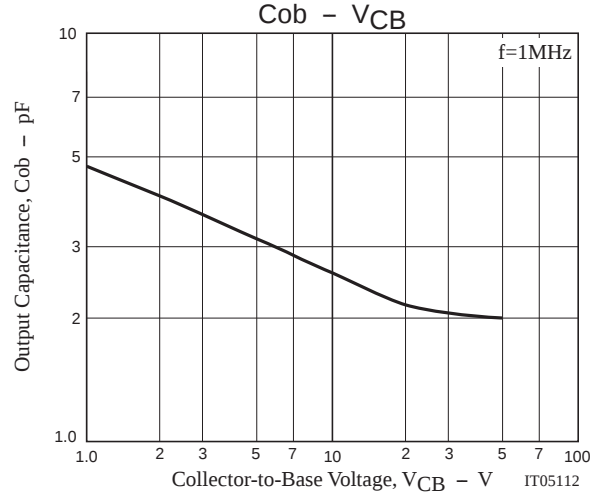
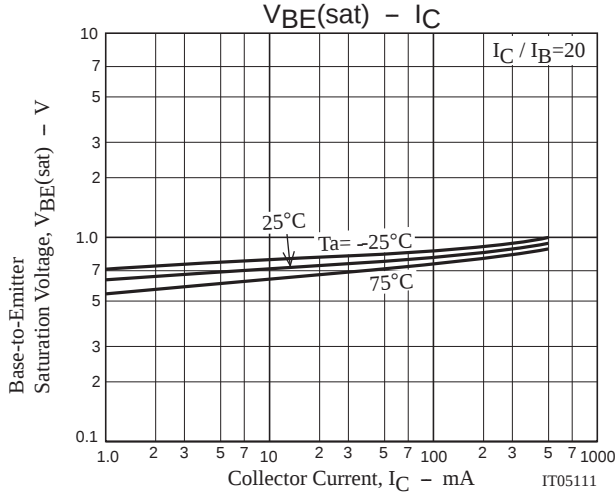
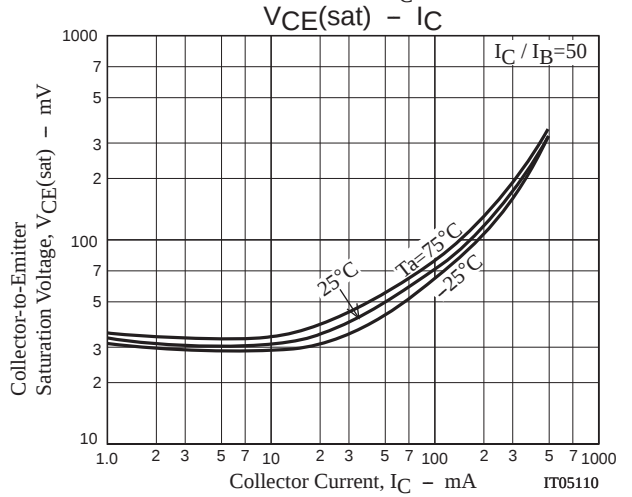
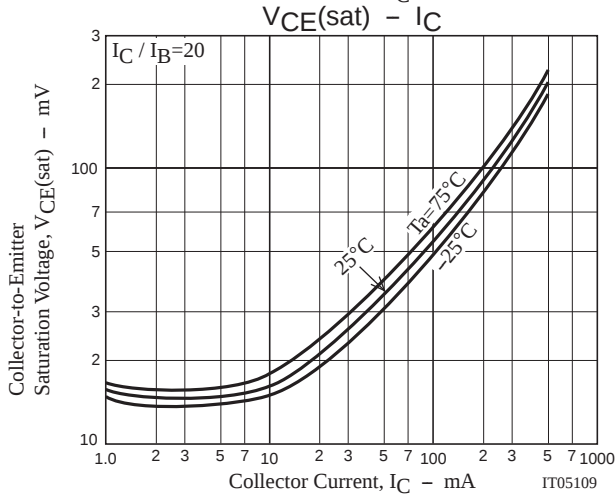
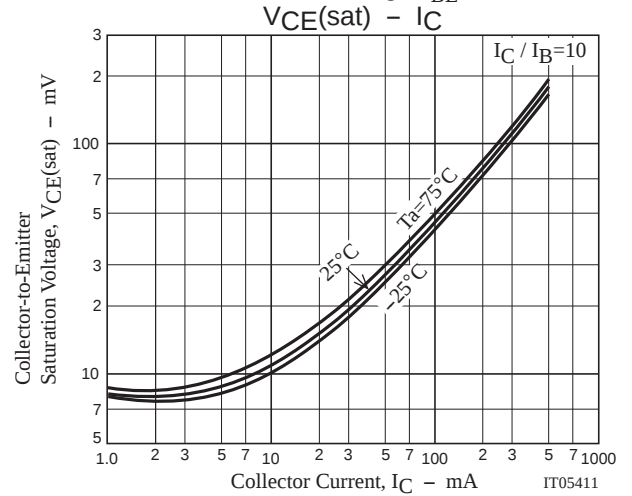
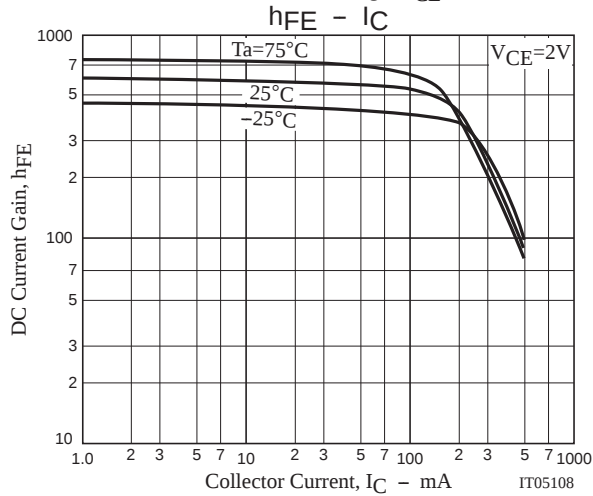
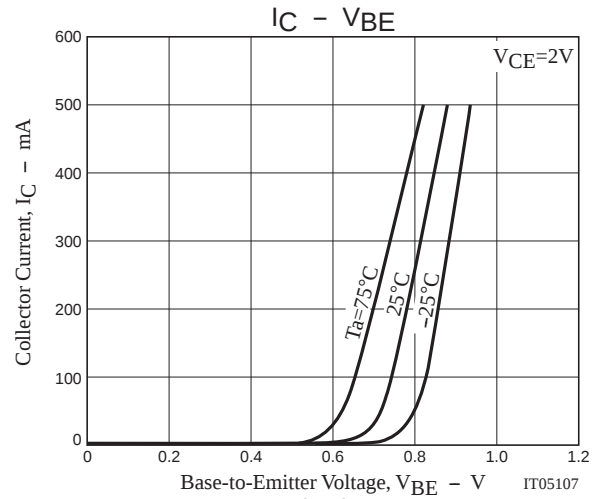
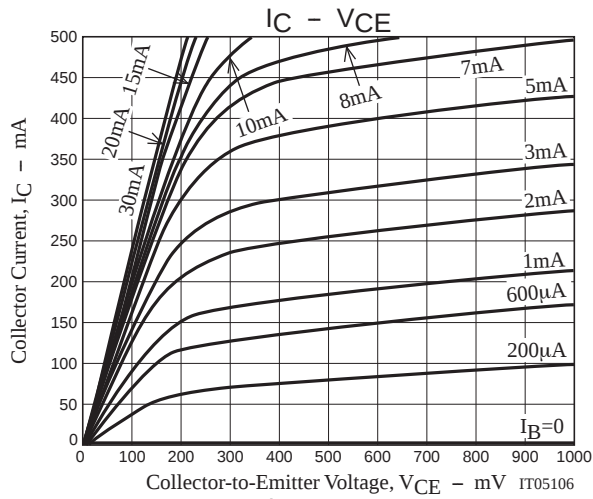


$I_C=20I_{B1}= -20I_{B2}=200mA$

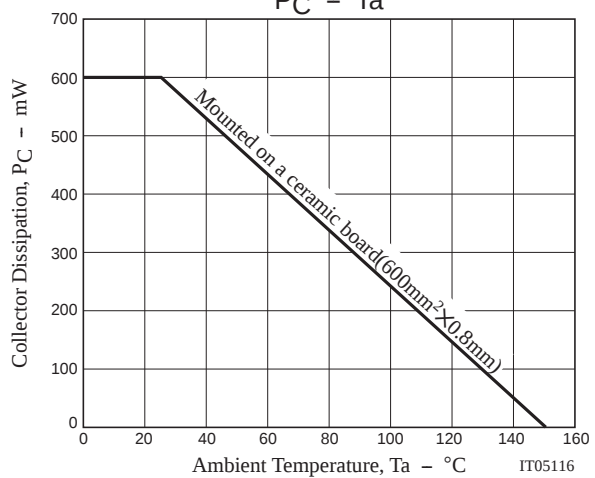
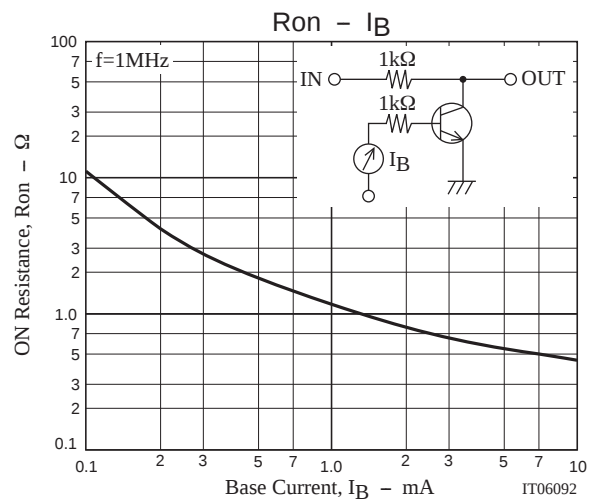
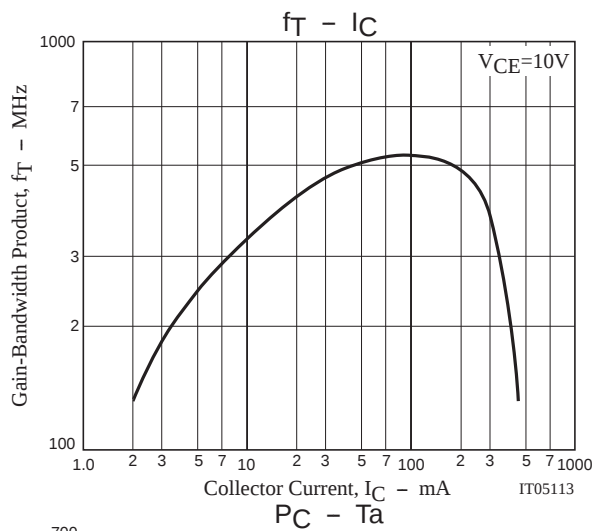
Ordering Information

Device	Package	Shipping	memo
50C02MH-TL-E	MCPH3	3,000pcs./reel	Pb Free

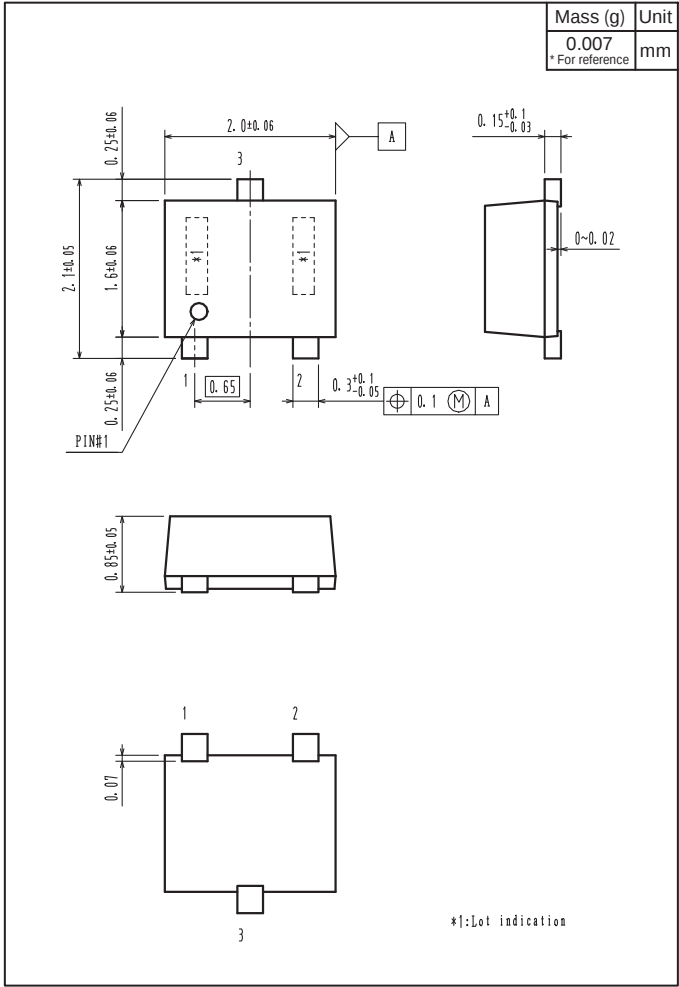
50C02MH



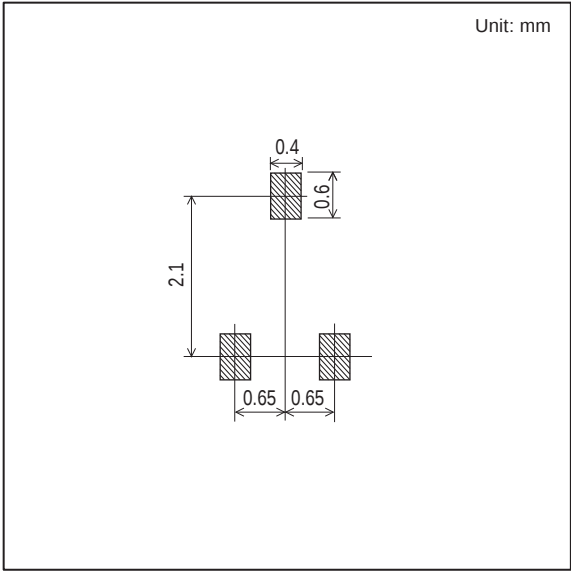
50C02MH



Outline Drawing
50C02MH-TL-E



Land Pattern Example



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