Ordering number : ENA1346A

PCP1103

Bipolar Transistor
−30V, −1.5A, Low V_{CE}(sat) PNP Single PCP

ON Semiconductor®
http://onsemi.com

Applications

- DC / DC converters, relay drivers, lamp drivers, motor drivers, IGBT gate drivers

Features

- Adoption of MBIT process
- Low collector to emitter saturation voltage
- High allowable power dissipation
- Large current capacity
- High speed switching
- Halogen free compliance

Specifications

Absolute Maximum Ratings at Ta=25°C

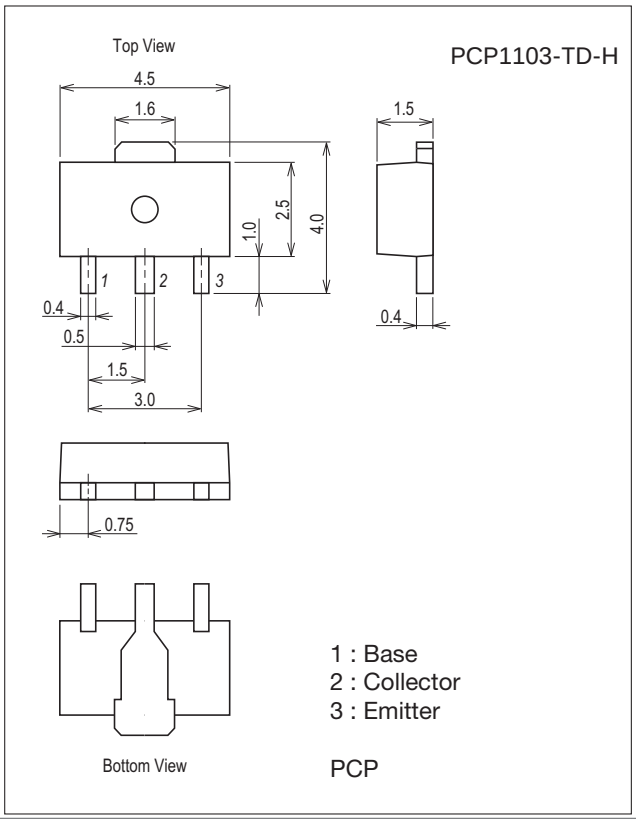
Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CBO}		−30	V
Collector to Emitter Voltage	V_{CEO}		−30	V
Emitter to Base Voltage	V_{EBO}		−5	V
Collector Current	I_C		−1.5	A
Collector Current (Pulse)	I_{CP}		−5	A

Continued on next page.

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Package Dimensions

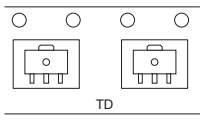
unit : mm (typ)
7007B-004



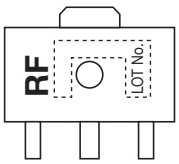
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

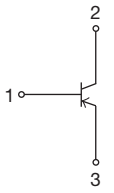
Packing Type: TD



Marking



Electrical Connection



Semiconductor Components Industries, LLC, 2013

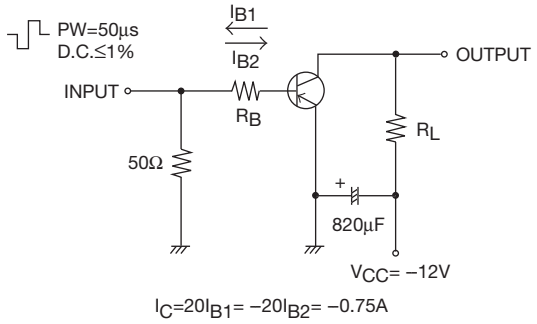
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		−300	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (450mm^2×0.8mm)	1.3	W
		Tc=25°C	3.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−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}= −30V, I_E=0A			−0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}= −4V, I_C=0A			−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		450		MHz
Output Capacitance	Cob	V_{CB}= −10V, f=1MHz		9		pF
Collector to Emitter Saturation Voltage	V_{CE}(sat)	I_C= −0.75A, I_B= −15mA		−250	−375	mV
Base to Emitter Saturation Voltage	V_{BE}(sat)	I_C= −0.75A, I_B= −15mA		−0.85	−1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= −10μA, I_E=0A	−30			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C= −1mA, R_{BE}=∞	−30			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.		35		ns
Storage Time	t_{stg}			115		ns
Fall Time	t_f			30		ns

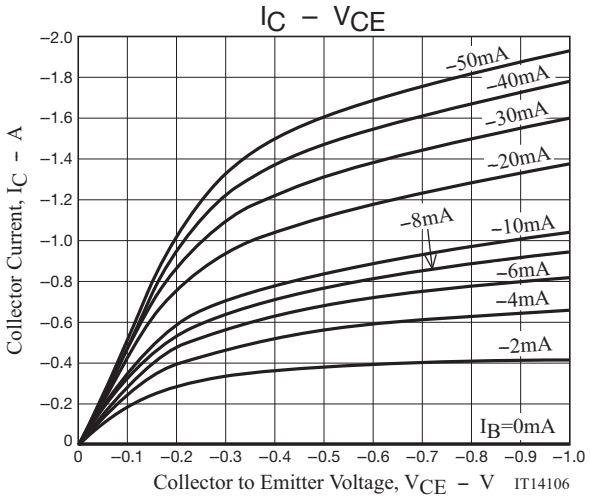
Switching Time Test Circuit

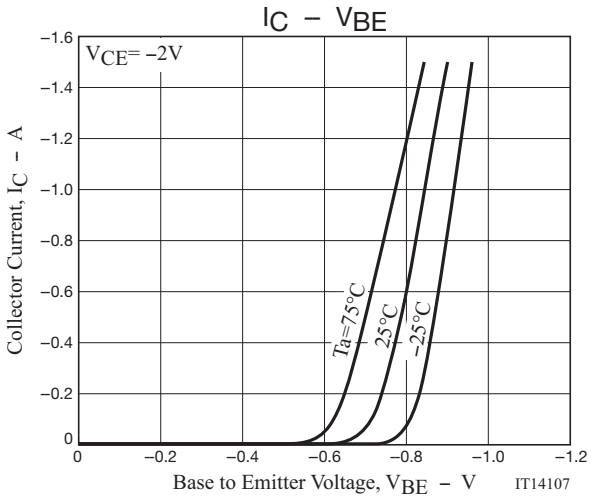


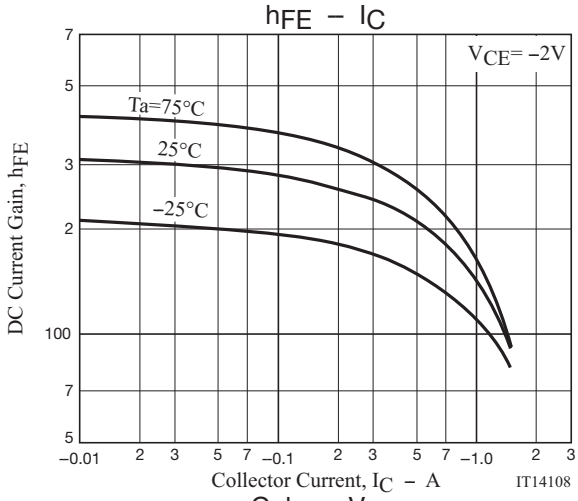
I_C=20I_{B1}= −20I_{B2}= −0.75A

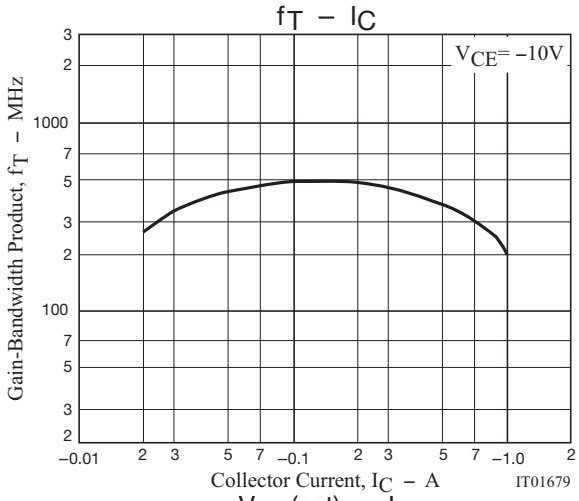
Ordering Information

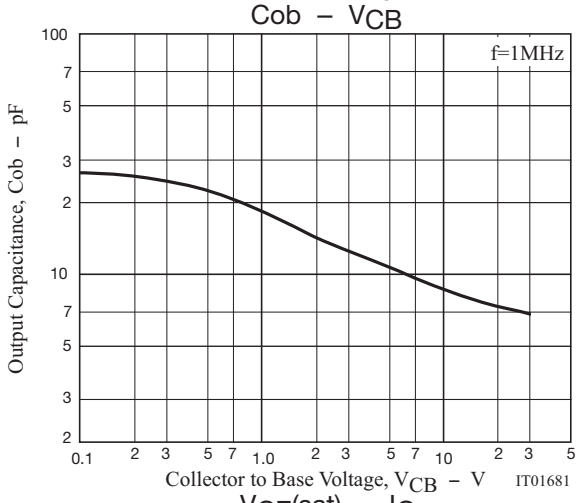
Device	Package	Shipping	memo
PCP1103-TD-H	PCP	1,000pcs./reel	Pb Free and Halogem Free

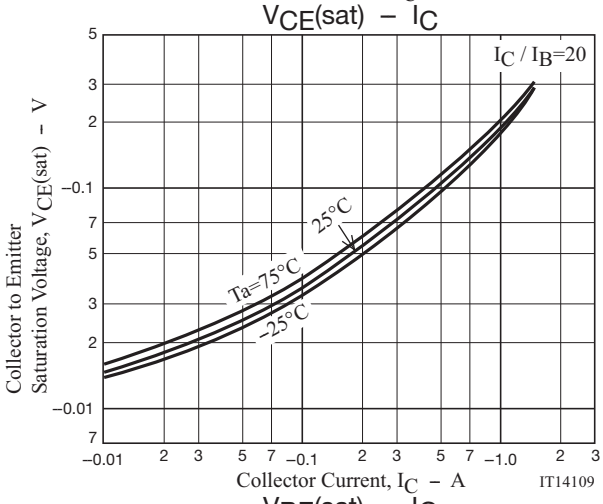


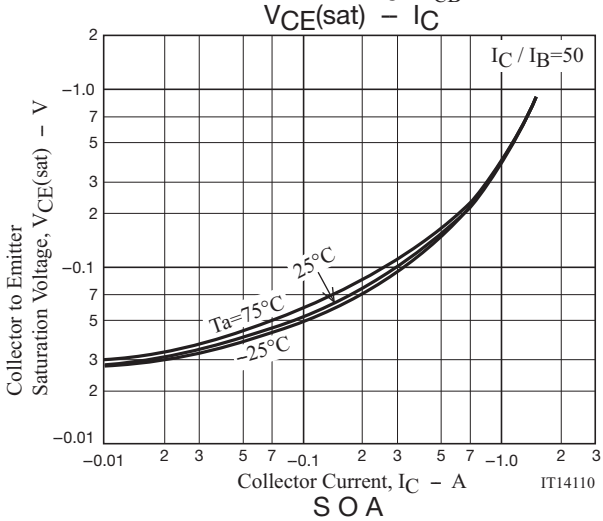


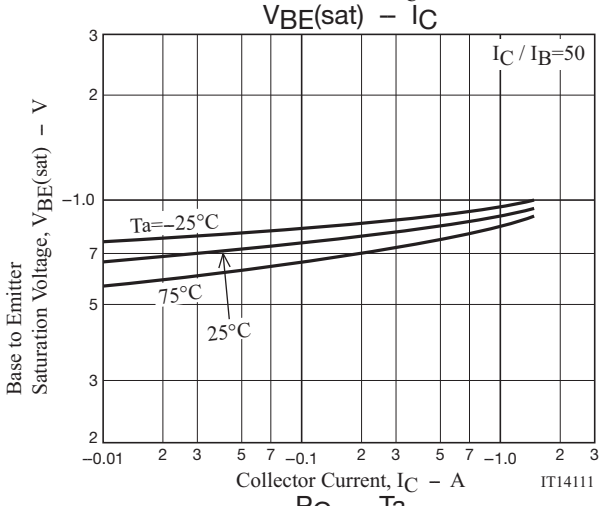

hFE – IC
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT14108

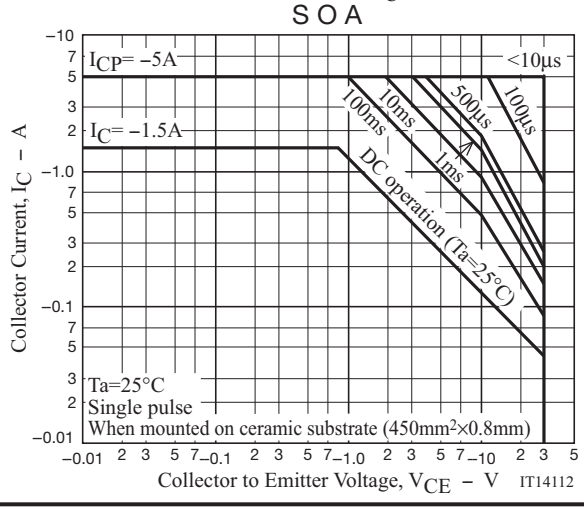

fT – IC
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
IT01679

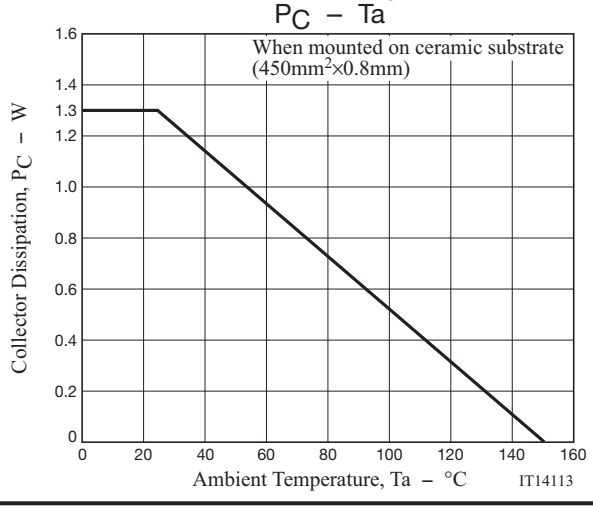

Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector to Base Voltage, VCB – V
IT01681

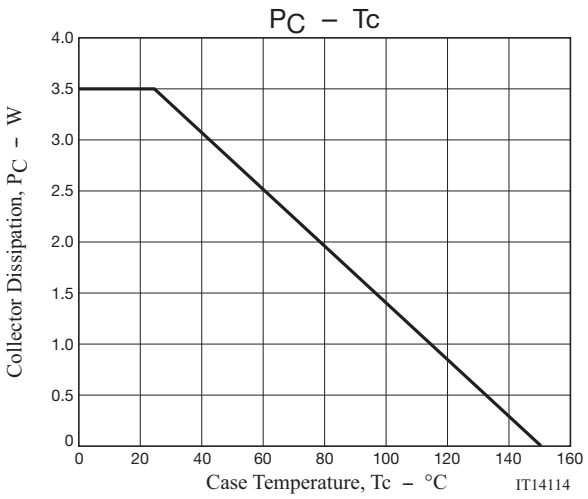

VCE(sat) – IC
IC / IB=20
25°C
Ta=75°C
–25°C
Collector to Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT14109


VCE(sat) – IC
IC / IB=50
25°C
Ta=75°C
–25°C
Collector to Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT14110


VBE(sat) – IC
IC / IB=50
Ta=–25°C
75°C
25°C
Base to Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT14111

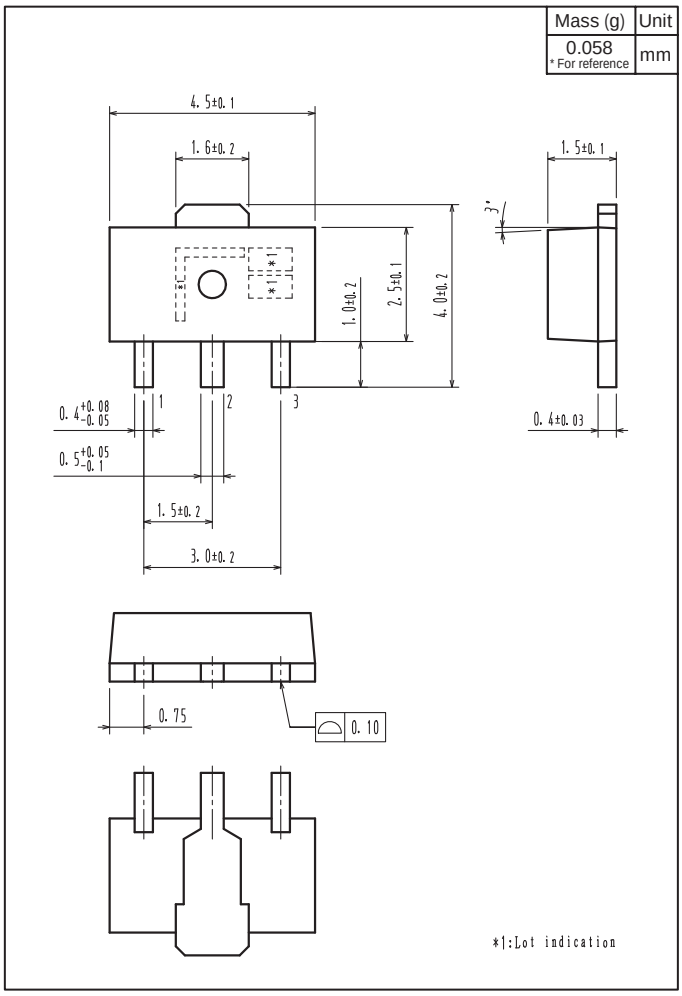

S O A
ICP= –5A
IC= –1.5A
<10µs
100µs
500µs
10ms
100ms
1ms
DC operation (Ta=25°C)
Ta=25°C
Single pulse
When mounted on ceramic substrate (450mm²×0.8mm)
Collector Current, IC – A
Collector to Emitter Voltage, VCE – V
IT14112


PC – Ta
When mounted on ceramic substrate
(450mm²×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
IT14113

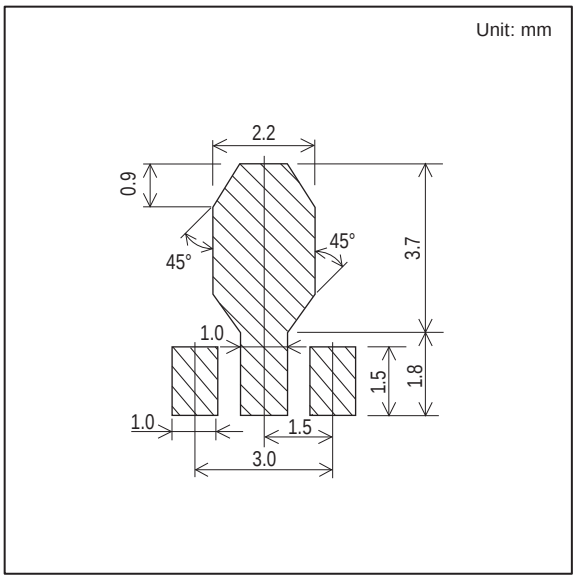

PC – Tc
Collector Dissipation, PC – W
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc – °C
IT14114

Outline Drawing

PCP1103-TD-H



Land Pattern Example



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