Ordering number : ENA0291A

SANYO Semiconductors
DATA SHEET

VEC2102 — PNP Epitaxial Planar Silicon Transistor
DC / DC Converter Applications

Applications

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

Features

- Composite type with 2 PNP transistors contained in a single package, facilitating high-density mounting.
- The VEC2102 consists of two chips which are equivalent to the CPH3109 encapsulated in a package.
- Ultrasmall package permitting applied sets to be small and slim (mounting height : 0.75mm).

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-Collector Voltage	V_{ECO}		−6.5	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	When mounted on ceramic substrate (900mm²×0.8mm) 1unit	1.1	W
Total Dissipation	P_T	When mounted on ceramic substrate (900mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Marking : AC

Continued on next page.

SANYO Semiconductor Co., Ltd.
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Electrical Characteristics at Ta=25°C

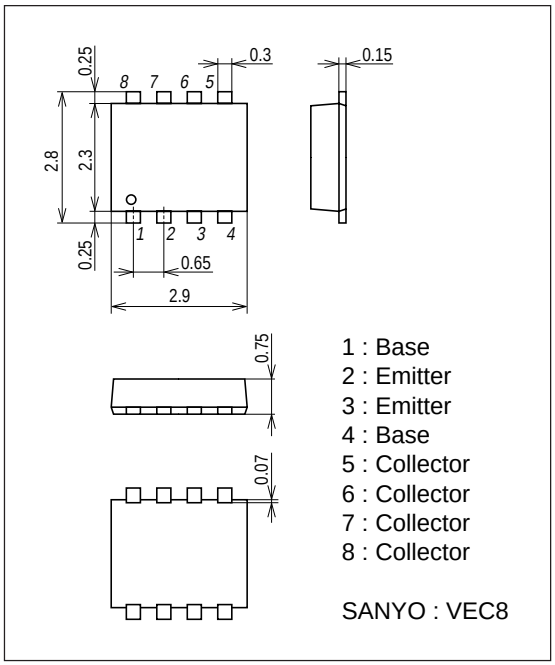
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–30V, I_E=0A			–0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0A			–0.1	μA
DC Current Gain	h_{FE}	V_{CE}=–2V, I_C=–500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=–10V, I_C=–500mA		380		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		25		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C=–1.5A, I_B=–30mA		–160	–235	mV
	V_{CE}(sat)2	I_C=–1.5A, I_B=–75mA		–110	–160	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=–1.5A, I_B=–30mA		–0.83	–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-Collector Breakdown Voltage	$V_{(BR)ECO}$	I_C=–10μA, R_{CB}=∞	–6.5			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0A	–5			V
Turm-ON Time	t_{on}	See specified Test Circuit.		50		ns
Storage Time	t_{stg}	See specified Test Circuit.		270		ns
Fall Time	t_f	See specified Test Circuit.		25		ns

Note : The specifications shown above are for each individual transistor.

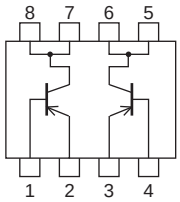
Package Dimensions

unit : mm (typ)

7012-007



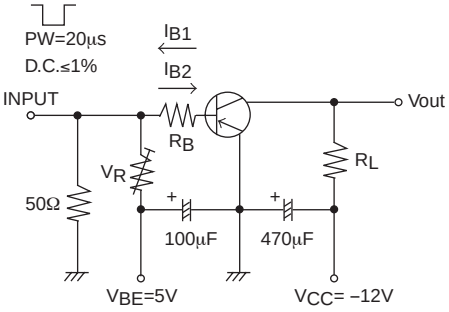
Electrical Connection



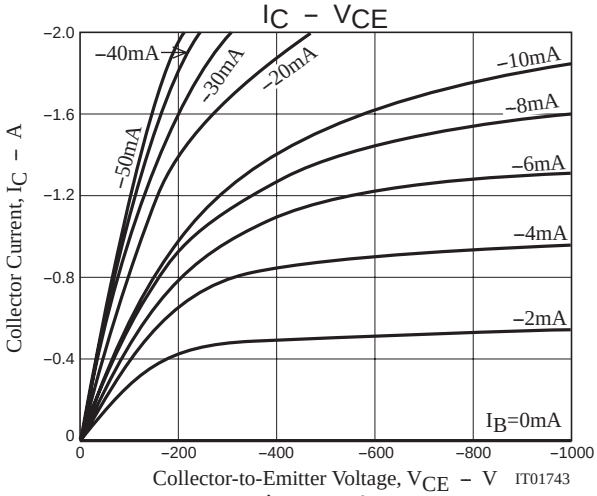
1 : Base
2 : Emitter
3 : Emitter
4 : Base
5 : Collector
6 : Collector
7 : Collector
8 : Collector

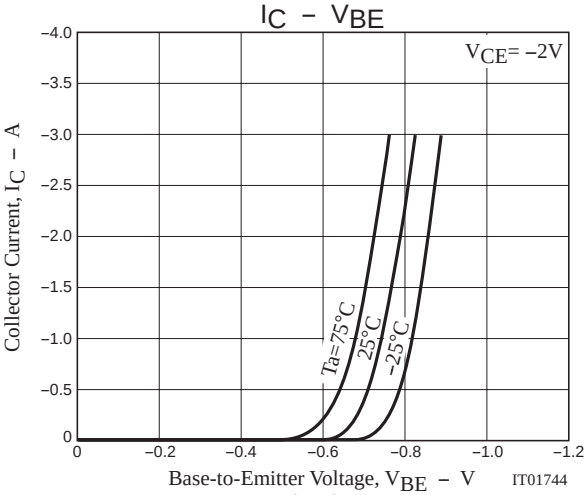
Top view

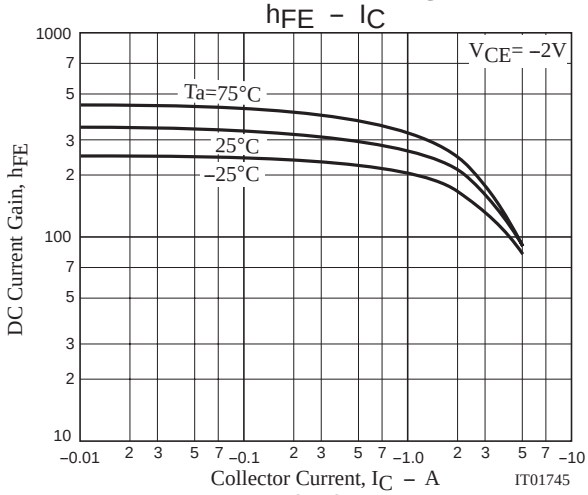
Switching Time Test Circuit

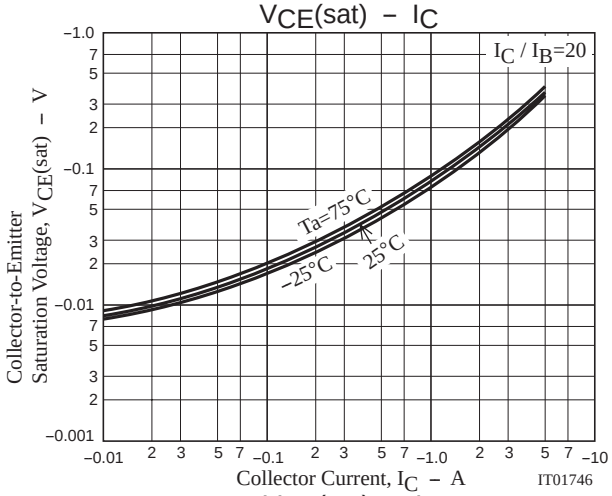


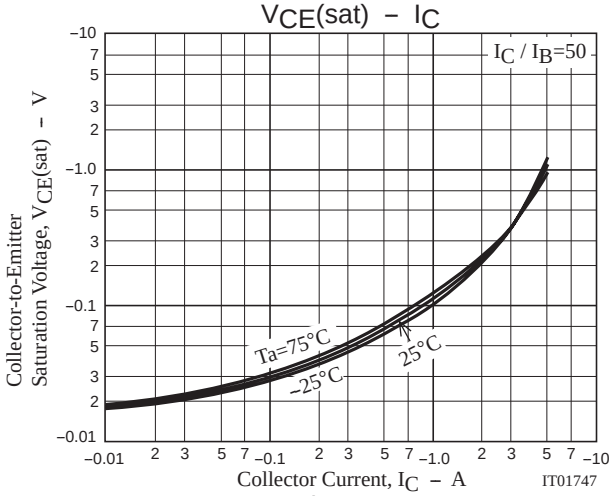
I_C=20I_{B1}= –20I_{B2}=500mA

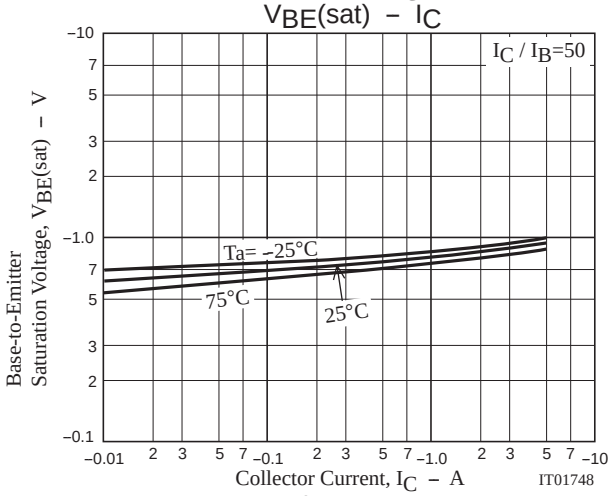

IC – VCE
–40mA
–30mA
–20mA
–10mA
–8mA
–6mA
–4mA
–2mA
–50mA
IB=0mA
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
IT01743

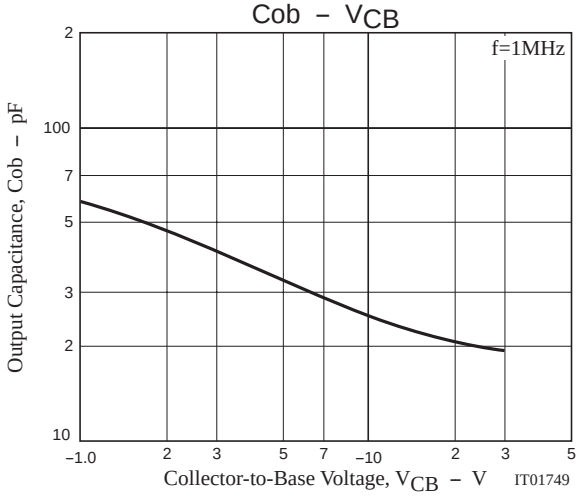

IC – VBE
VCE= –2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
IT01744

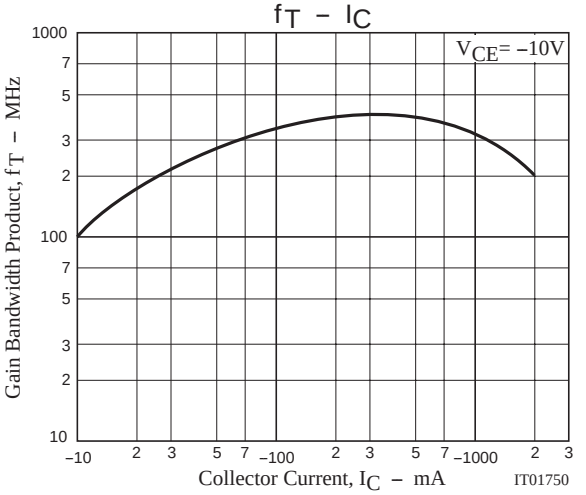

hFE – IC
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
IT01745

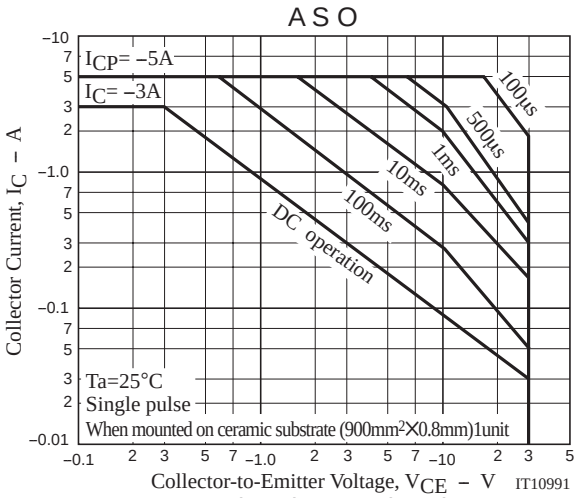

VCE(sat) – IC
IC / IB=20
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT01746

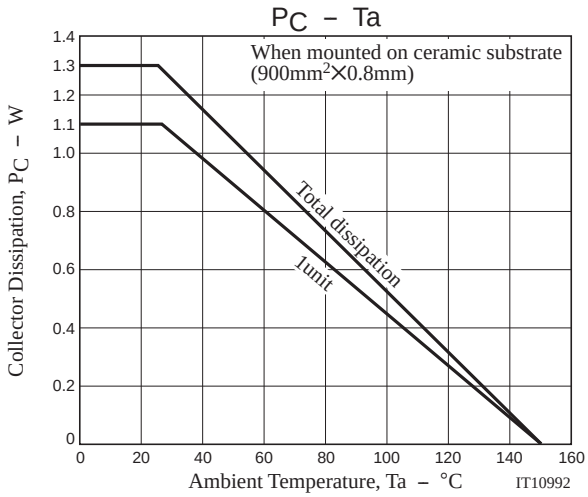

VCE(sat) – IC
IC / IB=50
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
IT01747

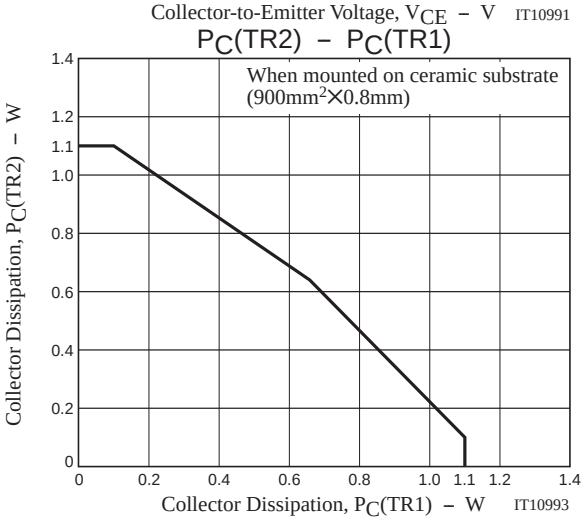

VBE(sat) – IC
IC / IB=50
Ta= –25°C
75°C
25°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
IT01748


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
IT01749


fT – IC
VCE= –10V
Gain Bandwidth Product, fT – MHz
Collector Current, IC – mA
IT01750







- SANYO Semiconductor Co.,Ltd. assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO Semiconductor Co.,Ltd. products described or contained herein.
- SANYO Semiconductor Co.,Ltd. strives to supply high-quality high-reliability products, however, any and all semiconductor products fail or malfunction with some probability. It is possible that these probabilistic failures or malfunction could give rise to accidents or events that could endanger human lives, trouble that could give rise to smoke or fire, or accidents that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO Semiconductor Co.,Ltd. products described or contained herein are controlled under any of applicable local export control laws and regulations, such products may require the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written consent of SANYO Semiconductor Co.,Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO Semiconductor Co.,Ltd. product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production.
- Upon using the technical information or products described herein, neither warranty nor license shall be granted with regard to intellectual property rights or any other rights of SANYO Semiconductor Co.,Ltd. or any third party. SANYO Semiconductor Co.,Ltd. shall not be liable for any claim or suits with regard to a third party's intellectual property rights which has resulted from the use of the technical information and products mentioned above.

This catalog provides information as of March, 2008. Specifications and information herein are subject to change without notice.