

SOT-23 Formed SMD Package

CMBT5401

SILICON P-N-P HIGH-VOLTAGE TRANSISTOR

P-N-P transistor

Marking

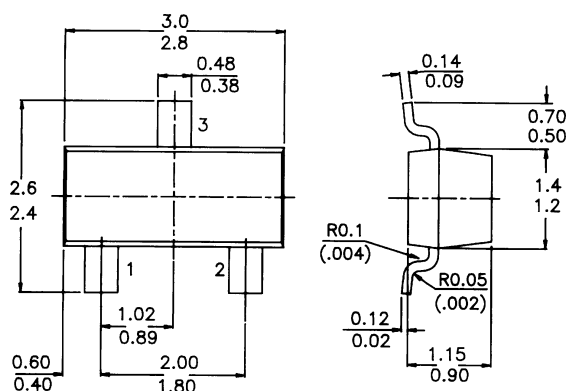
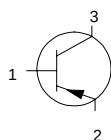
CMBT5401 = 2L

PACKAGE OUTLINE DETAILS

ALL DIMENSIONS IN mm

Pin configuration

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	160 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	150 V
Collector current	$-I_C$	max.	500 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}	max	250 mW
Collector-emitter saturation voltage	V_{CEsat}	max.	0,5 V
D.C. current gain	h_{FE}		60 to 240
$I_C = 50 \text{ mA}; I_B = 5 \text{ mA}$			
$I_C = 10 \text{ mA}; V_{CE} = -5 \text{ V}$			

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	160 V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	150 V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5 V
Collector current	$-I_C$	max.	500 mA

CMBT5401

Total power dissipation up to $T_{amb} = 25^{\circ}\text{C}$	P_{tot}	max	250 mW
Junction temperature	T_j	max.	150 $^{\circ}\text{C}$
Storage temperature	T_{stg}		-55 to +150 $^{\circ}\text{C}$

THERMAL RESISTANCE

from junction to ambient	$R_{th\ j-a}$		500 K/W
--------------------------	---------------	--	---------

CHARACTERISTICS (at $T_A = 25^{\circ}\text{C}$ unless otherwise specified)

Collector cut-off current

$I_E = 0; -V_{CB} = 120\text{ V}$	$-I_{CBO}$	max.	50 nA
$I_E = 0; -V_{CB} = 120\text{ V}; T_{amb} = 150\text{ }^{\circ}\text{C}$	$-I_{CBO}$	max.	50 mA

Breakdown voltages

$I_C = 1\text{ mA}; I_B = 0$	$-V_{(BR)CEO}$	min.	150 V
$I_C = 100\text{ mA}; I_E = 0$	$-V_{(BR)CBO}$	min.	160 V
$I_C = 0; I_E = 10\text{ mA}$	$-V_{(BR)EBO}$	min.	5 V

Saturation voltages

$-I_C = 10\text{ mA}; -I_B = 1\text{ mA}$	$-V_{CEsat}$	max.	0.2 V
	$-V_{BEsat}$	max.	1 V
$-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$	$-V_{CEsat}$	max.	0.5 V
	$-V_{BEsat}$	max.	1 V

D.C. current gain

$I_C = 1\text{ mA}; -V_{CE} = 5\text{ V}$	h_{FE}	min.	50
$I_C = 10\text{ mA}; -V_{CE} = 5\text{ V}$	h_{FE}	min.	60
		max.	240
$I_C = 50\text{ mA}; -V_{CE} = 5\text{ V}$	h_{FE}	min.	50

Small-signal current gain

$I_C = 1\text{ mA}; -V_{CE} = 10\text{ V}; f = 1\text{ kHz}$	h_{fe}	min.	40
		max.	200

Output capacitance at $f = 1\text{ MHz}$

$I_E = 0; -V_{CB} = 10\text{ V}$	C_o	max.	6 pF
----------------------------------	-------	------	------

Transition frequency at $f = 100\text{ MHz}$

$-I_C = 10\text{ mA}; -V_{CE} = 10\text{ V}; T_{amb} = 25\text{ }^{\circ}\text{C}$	f_T	min.	100 MHz
		max.	300 MHz

Noise figure at $R_S = 10\text{ }\Omega$

$I_C = 200\text{ mA}; -V_{CE} = 5\text{ V}$	F	max.	8 dB
$f = 10\text{ Hz to } 15.7\text{ kHz}; T_{amb} = 25\text{ }^{\circ}\text{C}$			

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished on the CDIL Web Site/ CD is believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Discrete Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of
Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com