Continental Device India Limited
An ISO/TS 16949, ISO 9001 and ISO 14001 Certified Company

SOT-23 Formed SMD Package

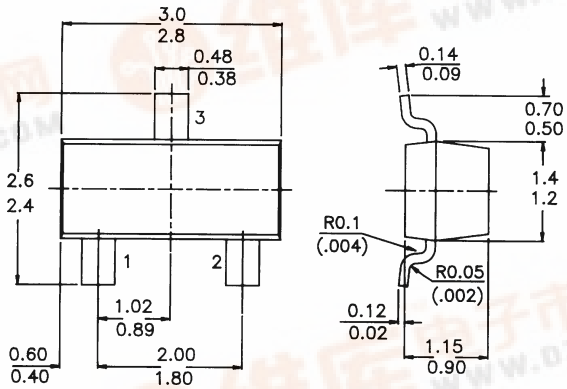
CMBT2222
CMBT2222A

SILICON PLANAR EPITAXIAL TRANSISTORS

N–P–N silicon transistors

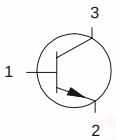
Marking
CMBT2222 = lB
CMBT2222A = lP

PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm



Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

			CMBT2222	CMBT2222A	
Collector–base voltage (open ernitter)	V_{CB0}	*max.*	*60*	*75*	*V*
Collector–emitter voltage (open base)	V_{CE0}	*max.*	*30*	*40*	*V*
Emitter base voltage (open collector)	V_{EB0}	*max.*	*5,0*	*6,0*	*V*
Collector current (d.c.)	I_C	*max.*	*600*		*mA*
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	*max.*	*250*		*mW*
D.C. current gain					
I_C = 150mA; V_{CE} = 10V	h_{FE}		*100 to 300*		
lC = 500mA; V_{CE} = 10V	h_{FE}	>	*30*	*40*	
Transition frequency at f = 100 MHz					
I_C = 20 mA; V_{CE} = 20 V	f_T	>	*250*	*300*	MHz

RATINGS *(at T_A = 25°C unless otherwise specified)*
Limiting values

			CMBT2222	CMBT2222A	
Collector–base voltage (open emitter)	V_{CBO}	*max.*	*60*	*75*	*V*
Collector–emitter voltage (open base)	V_{CEO}	*rnax.*	*30*	*40*	*V*
Emitter–base voltage (open collector)	V_{EBO}	*max.*	*5,0*	*6,0*	*V*
Collector current (d.c,)	I_C	*max.*	*600*		*mA*
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	*max.*	*250*		*mW*
Storage temperature range	T_{stg}		*–55 to +150*		*° C*
Junction temperature	T_j	*max.*	*150*		*° C*

THERMAL RESISTANCE

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

CHARACTERISTICS
T_j = 25 °C unless otherwise specified

			CMBT2222	CMBT2222A	
Collector cut–off current					
I_E = 0; V_{CB} = 50 V	I_{CBO}	<	*0,01*		µA
I_E = 0; V_{CB} = 60 V	I_{CBO}	<	*–*	*0,01*	*µA*
I_E = 0; V_{CB} = 50 V; T_i – 125 °C	I_{CBO}	<	*10*	*–*	*µA*
I_E = 0; V_{CB} = 60 V; T_j = 125 °C	I_{CBO}	<	*–*	*10*	µA
V_{EB} = 3 V; V_{CE} = 60 V	I_{CEX}	< –	*–*	*10*	*nA*
Base current					
with reverse biased emitter junction					
V_{FB} = 3V; V_{CE} = 60V	I_{BEX}	<	*–*	*20*	*nA*
Emitter cut–off current					
I_C = 0; V_{EB} = 3V	I_{EBO}	<	*–*	*10*	*nA*
Saturation voltages					
I_C = 150 mA; l_B = 15 mA	V_{CEsat}	<	*400*	*300*	*mV*
	V_{BEsat}	<	*1.3*	*–*	*V*
	V_{BEsat}		*–*	*0,6 to 1,2*	*V*
I_C = 500 mA; l_B = 50 mA	V_{CEsat}	<	*1.6*	*1.0*	*V*
	V_{BEsat}	<	*2.6*	*2.0*	*V*
Breakdown voltages					
I_C = 1,0µ A; I_B = 0	$V_{(BR)CEO}$	>	*30*	*40*	*V*
I_C = 100µA; I_E = 0	$V_{(BR)CBO}$	>	*60*	*75*	*V*
I_C = 0; I_E = 10µA	$V_{(BR)EBO}$	>	*5,0*	*6,0*	*V*

			CMBT2222	CMBT2222A	
D.C. current gain					
I_C = 0,1 mA; V_{CE} = 10V	h_{FE}	>	35		
I_C = 1 mA; V_{CE} = 10V	h_{FE}	>	50		
I_C = 10 mA; V_{CE} = 10 V	h_{FE}	>	75		
I_C = 10 mA; V_{CE} = 10 V; T_{amb} = –55 °C	h_{FE}	>	35		
I_C = 150mA; V_{CE} = 10V	h_{FE}		100 to 300		
I_C = 150 mA; V_{CE} = 1 V	h_{FE}	>	50		
I_C = 500 mA; V_{CE} = 10 V	h_{FE}	>	30	40	
Transition frequency at f = 100 MHz					
I_C = 20 mA; V_{CE} = 20 V	f_T	>	250	300	MHz
Output capacitance at f = 1 MHz					
I_E = 0; V_{CB} = 10V	Co	<	8,0		pF
Input capacitance at f = 1 MHz					
I_C = 0; V_{EB} = 0,5V	Ci	<	30	25	pF
Noise figure at R_S = 1 kΩ					
I_C = 100μA; V_{CE} = 10V; f = 1 kHz	F	<	4,0		dB
Switching times (between 10% and 90% levels)					
Turn–on time switched to I_c = 150 mA					
delay time	t_d	<	10		ns
rise time	t_r	<	25		ns
Turn–off time switched from I_c = 150 mA					
storage time	t_s	<	225		ns
fall time	t_f	<	60		ns
Small Signal Current Gain					
V_{CE} = 10V; I_C = 1 mA; f = 1 KHz	h_{fe}	>	50		
		<	300		
V_{CE} = 10V; I_C = 10mA; f = 1 KHz	h_{fe}	>	75		
		<	375		

Customer Notes

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 are 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).

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