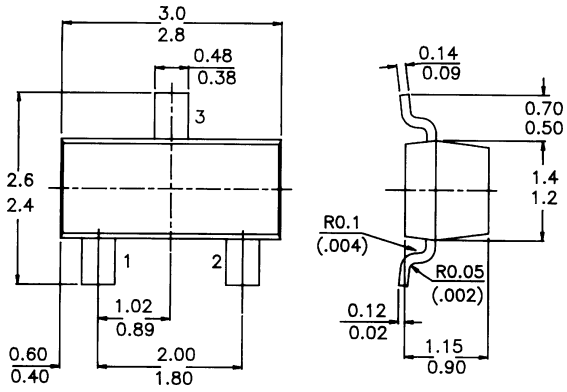
SOT-23 Formed SMD Package **CMBT5401**

SILICON P–N–P HIGH–VOLTAGE TRANSISTOR

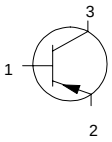
P–N–P transistor

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°C	P_{tot}	*max*	*250* mW
Collector–emitter saturation voltage			
I_C = 50 mA; I_B = 5 mA	V_{CEsat}	*max.*	*0,5 V*
D.C. current gain			
I_C = 10 mA; V_{CE} = –5 V	h_{FE}		*60 to 240*

RATINGS *(at T_A = 25°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*

Total power dissipation up to T_{amb} = 25°C	P_{tot}	*max*	*250*	mW
Junction temperature	T_j	*max.*	*150*	*° C*
Storage temperature	T_{stg}		*–55 to +150*	*° C*

THERMAL RESISTANCE

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

CHARACTERISTICS *(at T_A = 25°C unless otherwise specified)*

Collector cut–off current				
I_E = 0; $-V_{CB}$ = 120 V	$-I_{CBO}$	*max.*	*50*	*nA*
I_E = 0; $-V_{CB}$ = 120 V; T_{amb} = 150 °C	$-I_{CBO}$	*max.*	*50*	*µA*
Breakdown voltages				
I_C = 1 mA; I_B = 0	$-V_{(BR)CEO}$	*min.*	*150*	*V*
I_C = 100 µA; I_E = 0	$-V_{(BR)CBO}$	*min.*	*160*	*V*
I_C = 0; I_E = 10 µA	$-V_{(BR)EBO}$	*min.*	*5*	*V*
Saturation voltages				
$-I_C$ = 10 mA; $-I_B$ = 1 mA	$-V_{CEsat}$	*max.*	*0.2*	*V*
	$-V_{BEsat}$	*max.*	*1*	*V*
$-I_C$ = 50 mA; $-I_B$ = 5 mA	$-V_{CEsat}$	*max.*	*0.5*	*V*
	$-V_{BEsat}$	*max.*	*1*	*V*
D.C. current gain				
I_C = 1 mA; $-V_{CE}$ = 5 V	h_{FE}	*min.*	*50*	
I_C = 10 mA; $-V_{CE}$ = 5 V	h_{FE}	*min.*	*60*	
		max.	*240*	
I_C = 50 mA; $-V_{CE}$ = 5 V	h_{FE}	*min.*	*50*	
Small–signal current gain				
I_C = 1 mA; $-V_{CE}$ = 10 V; f = 1 kHz	h_{fe}	*min.*	*40*	
		max.	*200*	
Output capacitance at f = 1 MHz				
I_E = 0; $-V_{CB}$ = 10 V	C_o	*max.*	*6*	*pF*
Transition frequency at f = 100 MHz				
$-I_C$ = 10 mA; $-V_{CE}$ = 10 V; T_{amb} = 25 °C	f_T	*min.*	*100*	MHz
		max.	*300*	MHz
Noise figure at R_S = 10 Ω				
I_C = 200 µA; $-V_{CE}$ = 5 V				
f = 10 Hz to 15.7 kHz; T_{amb} = 25 °C	*F*	*max.*	*8*	*dB*

Customer Notes

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