SOT-23 Formed SMD Package

CMBTA13
CMBTA14

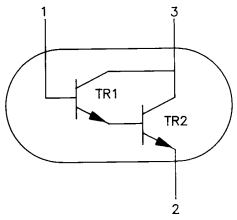
N–P–N SMALL–SIGNAL DARLINGTON TRANSISTORS

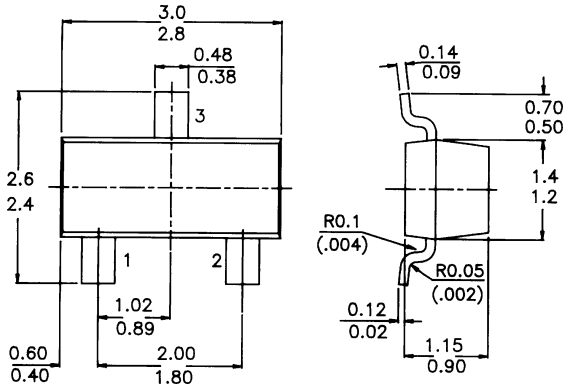
N–P–N transistors

Marking
CMBTA13 = 1M
CMBTA14 = 1N

PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm

Pin configuration
1 = BASE
2 = EMITTER
3 = COLLECTOR





ABSOLUTE MAXIMUM RATINGS

Collector–emitter voltage (open base)					
$V_{BE} = 0$		V_{CES}	*max.*	30	V
Collector current (d.c.)		I_C	*max.*	300	mA
Total power dissipation up to $T_{amb} = 25°C$		P_{tot}	*max.*	250	mW
Junction temperature		T_j	*max.*	150	°C
D.C. current gain					
$I_C = 10$ mA; $V_{CE} = 5$ V	CMBTA13	h_{FE}	*min.*	5000	
	CMBTA14	h_{FE}	*min.*	10000	
Transition frequency at $f = 100$ MHz					
$I_C = 10$ mA; $V_{CE} = 5$ V		f_T	*min.*	125	MHz

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

Limiting values				
Collector–base voltage (open emitter)				
V_{BE} = 0	V_{CBO}	*max.*	*30*	*V*
Collector–emitter voltage (open base)				
V_{BE} = 0	V_{CES}	*max.*	*30*	*V*
Emitter–base voltage (open collector)	V_{EBO}	*max.*	*10*	*V*
Collector current (d.c.)	I_C	*max.*	*300*	*mA*
Total power dissipation up to T_{amb} = 25°C	P_{tot}	*max.*	*250*	*mW*
Storage temperature	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 *(at T_A = 25°C unless otherwise specified)*

Collector–emitter breakdown voltage					
I_C = 100 µA		$V_{(BR)CES}$	*min.*	*30*	*V*
Emitter–base cut–off current					
V_{BE} = 10 V		I_{EBO}	*max.*	*0.1*	µA
Collector–base cut–off current					
V_{CB} = 30 V		I_{CBO}	*max.*	*0.1*	µA
D.C. current gain					
I_C = 10 mA; V_{CE} = 5 V	*CMBTA13*	h_{FE}	*min.*	*5000*	
	CMBTA14	h_{FE}	*min.*	*10000*	
I_C = 100 mA; V_{CE} = 5 V	*CMBTA13*	h_{FE}	*min.*	*10000*	
	CMBTA14	h_{FE}	*min.*	*20000*	
Collector–emitter saturation voltage					
IC = 100 mA; I_B = 0.1 mA		V_{CEsat}	*max.*	*1.5*	*V*
Base–emitter On voltage					
I_C = 100 mA; V_{CE} = 5 V;		$V_{BE(on)}$	*max.*	*2*	*V*
Transition frequency at f = 100 MHz					
I_C = 10 mA; V_{CE} = 5 V		f_T	*min.*	*125*	MHz

Customer Notes

Disclaimer

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