

**SOT-23 Formed SMD Package**

**CMMT591**

**SILICON PLANAR EPITAXIAL TRANSISTORS**

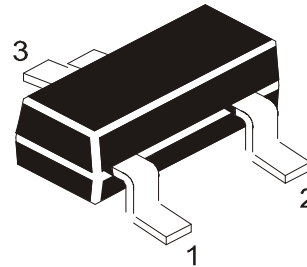
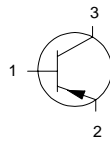
*PNP transistor*

**Marking**

*CMMT = 591*

**Pin configuration**

1 = BASE  
2 = EMITTER  
3 = COLLECTOR



**ABSOLUTE MAXIMUM RATINGS**

Collector-base voltage (open emitter)  
Collector-emitter voltage (open base)  
Emitter-base voltage (open collector)  
Collector current  
Peak Pulse current  
Base current  
Total power dissipation at  $T_{amb} = 25^{\circ}C$   
Junction temperature  
D.C. current gain  
 $-I_C = 500 \text{ mA}; V_{CE} = 5 \text{ V}$   
  
Transition frequency at  $f = 100 \text{ MHz}$   
 $I_C = 50 \text{ mA}; V_{CE} = 10 \text{ V}$

$V_{CBO}$	max.	80 V
$V_{CEO}$	max.	60 V
$V_{EBO}$	max.	5 V
$I_C$	max.	1 A
$I_{CM}$	max.	2 A
$I_B$	max.	200 mA
$P_{tot}$	max.	500 mW
$T_j$	max.	150 °C
$h_{FE}$	min.	100
	max.	300
$f_T$	min.	150 MHz

## CMMT591

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

#### Limiting values

Collector-base voltage (open emitter)	$V_{CBO}$	max.	80 V
Collector-emitter voltage (open base)	$V_{CEO}$	max.	60 V
Emitter-base voltage (open collector)	$V_{EBO}$	max.	5 V
Collector current	$I_C$	max.	1 A
Peak Pulse current	$I_{CM}$	max.	2 A
Base current	$I_B$	max.	200 mA
Total power dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{tot}$	max.	500 mW
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$

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

#### Collector cut-off current

$I_E = 0$ ; $V_{CB} = 60\text{ V}$	$I_{CBO}$	max.	100 nA
$V_{BE} = 0$ ; $V_{CE} = 60\text{ V}$	$I_{CES}$	max.	100 nA

#### Emitter cut-off current

$V_{EB} = 4\text{ V}$ ; $I_C = 0$	$I_{EBO}$	max.	100 nA
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#### Breakdown voltages

$I_C = 10\text{ mA}$ ; $I_B = 0$	$V_{CEO}$	min.	60 V
$I_C = 100\text{ }\mu\text{A}$ ; $I_E = 0$	$V_{CBO}$	min.	80 V
$I_E = 100\text{ }\mu\text{A}$ ; $I_C = 0$	$V_{EBO}$	min.	5 V

#### Base-emitter voltage

$I_C = 1\text{ A}$ ; $V_{CE} = 5\text{ V}$	$V_{BE}^*$	max.	1 V
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#### Saturation voltage

$I_C = 500\text{ mA}$ ; $I_B = 50\text{ mA}$	$V_{CEsat}^*$	max.	300 mV
$I_C = 1\text{ A}$ ; $I_B = 100\text{ mA}$		max.	600 mV
$I_C = 1\text{ A}$ ; $I_B = 100\text{ mA}$	$V_{BEsat}^*$	max.	1.2 V

#### D.C. current gain

$I_C = 1\text{ mA}$ ; $V_{CE} = 5\text{ V}$	$h_{FE}$	min.	100
$I_C = 500\text{ mA}$ ; $V_{CE} = 5\text{ V}^*$		min.	100
		max.	300
$I_C = 1\text{ A}$ ; $V_{CE} = 5\text{ V}^*$		min.	80
$I_C = 2\text{ A}$ ; $V_{CE} = 5\text{ V}^*$		min.	15

#### Collector capacitance at $f = 1\text{ MHz}$

$I_E = 0$ ; $V_{CB} = 10\text{ V}$	$C_{ob}$	max.	10 pF
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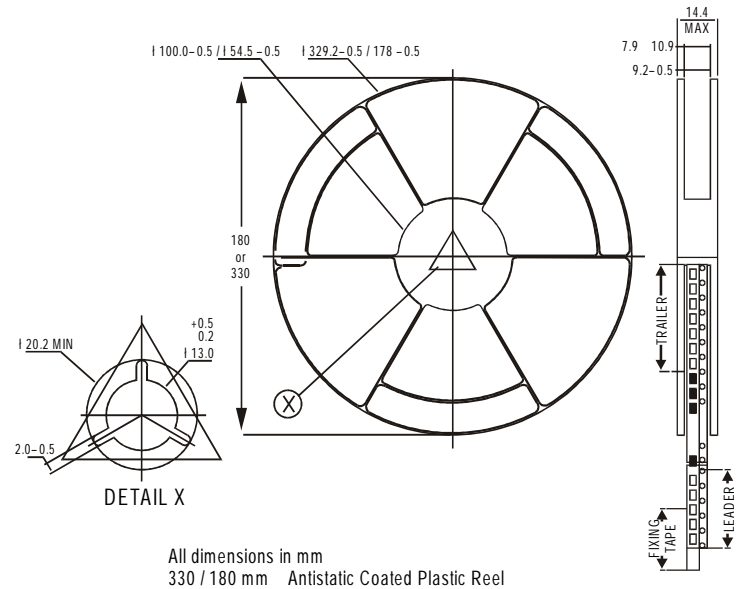
#### Transition frequency at $f = 100\text{ MHz}$

$I_C = 50\text{ mA}$ ; $V_{CE} = 10\text{ V}$	$f_T$	min.	150 MHz
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\* Measured under pulsed conditions: Pulse width = 300  $\mu\text{s}$ , duty cycle = 2%.

### SOT-23 Package Reel Information

Reel specifications for Packing (13"/7" reels)



- | NOTES:         |  | 8mm Tape<br>Size of Reel<br>330 mm (13")<br>10,000 Pcs | 8mm Tape<br>Size of Reel<br>180 mm (7")<br>3,000 Pcs |
|----------------|--|--|--|
| No. of Devices |  |  |  |
- The bandolier of 330 mm reel contains at least 10,000 devices.
  - The bandolier of 180 mm reel contains at least 3,000 devices.
  - No more than 0.5% missing devices / reel. 50 empty compartments for 330 mm reel. 15 empty compartments for 180 mm reel.
  - Three consecutive empty places might be found provided this gap is followed by 6 consecutive devices.
  - The carrier tape (leader) starts with at least 75 empty positions (equivalent to 330 mm). In order to fix the carrier tape a self adhesive tape of 20 to 50 mm is applied. At the end of the bandolier at least 40 empty positions (equivalent to 160 mm) are there.

[illegible]

## Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
SOT-23 T&R	3K/reel	136 gm/3K pcs	3" x 7.5" x 7.5"	12.0K	17" x 15" x 13.5"	192.0K	12 kgs
			9" x 9" x 9"	51.0K	19" x 19" x 19"	408.0K	28 kgs
	10K/reel	415 gm/10K pcs	13" x 13" x 0.5"	10.0K	17" x 15" x 13.5"	300.0K	16 kgs

## Customer Notes

### Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

## Disclaimer

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