

6367255 MOTOROLA SC (DIODES/OPTO)

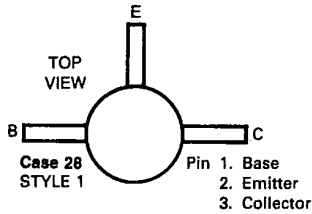
34C 38236 D

T-31-17

MICRO-T (continued)

MMT5031, A — NPN

HIGH FREQUENCY TRANSISTORS



- designed for use in high-gain, low-noise, small-signal amplifiers, requiring small size and miniature packaging.

MAXIMUM RATINGS

Rating	Symbol	MMT5031	MMT5031A	Unit
Collector-Emitter Voltage	V_{CEO}	10	14	Vdc
Collector-Base Voltage	V_{CBO}	15	20	Vdc
Emitter-Base Voltage	V_{EBO}	3.0	4.0	Vdc
Collector Current — Continuous	I_C	20		mAdc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	250	2.0	mW mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{slg}	-55 to +150		°C

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

Parameter	Test Conditions	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

BV_{CEO}	$I_C = 1.0 \text{ mAdc}, I_B = 0$	MMT5031	10	—	—	Vdc
		MMT5031A	14	—	—	
BV_{CBO}	$I_C = 100 \mu\text{Adc}, I_E = 0$	MMT5031	15	—	—	Vdc
		MMT5031A	20	—	—	
BV_{EBO}	$I_E = 10 \mu\text{Adc}, I_C = 0$	MMT5031	3.0	—	—	Vdc
		MMT5031A	4.0	—	—	
I_{CBO}	$V_{CB} = 6.0 \text{ Vdc}, I_E = 0$ $V_{CB} = 10 \text{ Vdc}, I_E = 0$	MMT5031	—	—	50	nAdc
		MMT5031A	—	—	50	

ON CHARACTERISTICS

h_{FE}	$I_C = 1.0 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc}$	MMT5031	25	—	300	—
	$I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	MMT5031A	20	—	—	
	$I_C = 5.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	MMT5031A	25	—	—	
$V_{CE(sat)}$	$I_C = 1.0 \text{ mAdc}, I_B = 100 \mu\text{A}$	MMT5031	—	—	0.15	Vdc
	$I_C = 1.5 \text{ mAdc}, I_B = 150 \mu\text{A}$	MMT5031A	—	—	0.15	
	$I_C = 5.0 \text{ mAdc}, I_B = 500 \mu\text{A}$	MMT5031A	—	—	0.20	
$V_{BE(sat)}$	$I_C = 1.0 \text{ mAdc}, I_B = 100 \mu\text{A}$	MMT5031	—	—	1.3	Vdc
	$I_C = 1.5 \text{ mAdc}, I_B = 150 \mu\text{A}$	MMT5031A	—	—	1.3	
	$I_C = 5.0 \text{ mAdc}, I_B = 500 \mu\text{A}$	MMT5031A	—	—	1.4	

14

continued

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7-31-17

MICRO-T (continued)

MMT5031,A (continued)

DYNAMIC CHARACTERISTICS

f_T	$I_C = 5.0 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc},$ $f = 200 \text{ MHz}$	MMT5031	1000	—	3500	MHz
	$I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc},$ $f = 200 \text{ MHz}$	MMT5031A	750	—	—	
	$I_C = 5.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc},$ $f = 200 \text{ MHz}$	MMT5031A	1000	—	—	
C_{cb}	$V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 0.1 \text{ MHz}$		—	—	1.0	pF
NF	$I_C = 1.0 \text{ mAdc}, V_{CE} = 6.0 \text{ Vdc},$ $f = 450 \text{ MHz}$	MMT5031	—	—	3.5	dB
	$I_C = 1.5 \text{ mAdc}, V_{CE} = 10 \text{ Vdc},$ $f = 450 \text{ MHz}$	MMT5031A	—	—	3.5	
G_{pe}	$V_{CE} = 6.0 \text{ Vdc}, I_C = 1.0 \text{ mAdc},$ $f = 450 \text{ MHz}$	MMT5031	12	17	25	dB
	$V_{CE} = 10 \text{ Vdc}, I_C = 1.5 \text{ mAdc},$ $f = 450 \text{ MHz}$	MMT5031A	12	—	—	