

MMBTH81

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

Symbol	Parameter	Test Conditions	Min	Max	Units					
OFF CHARACTERISTICS										
V _{(BR)CEO}	Collector Emitter Breakdown Voltage (Note 5)	I _C = 1.0 mA, I _B = 0	20		V					
V _{(BR)CBO}	Collector Base Breakdown Voltage	$I_{C} = 10 \ \mu A, \ I_{E} = 0$	20		V					
V _{(BR)EBO}	Emitter Base Breakdown Voltage	$I_{E} = 10 \ \mu A, \ I_{C} = 0$	3.0		V					
I _{CBO}	Collector Cutoff Current	$V_{CB} = 10 \text{ V}, I_E = 0$		100	nA					
I _{EBO}	Emitter Cutoff Current	$V_{EB} = 2.0 \text{ V}, I_C = 0$		100	nA					
ON CHARACTERISTICS										
h _{FE}	DC Current Gain	$I_{C} = 5.0 \text{ mA}, V_{CE} = 10 \text{ V}$	60							
V _{CE(sat)}	Collector Emitter Saturation Voltage	$I_{C} = 5.0 \text{ mA}, I_{B} = 0.5 \text{ mA}$		0.5	V					
V _{BE(sat)}	Base Emitter Saturation Voltage	$I_{C} = 5.0 \text{ mA}, V_{CE} = 10 \text{ V}$		0.9	V					
SMALL SIGNAL CHARACTERISTICS										
f _T	Current Gain Bandwidth Product	$I_{C} = 5.0 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$	600		MHz					
C _{cb}	Collector Base Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		0.85	pF					
C _{ce}	Collector Emitter Capacitance	V _{CB} = 10 V, I _B = 0, f = 1.0 MHz		0.65	pF					

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

5. Pulse Test: Pulse Width \leq 300 µs, Duty Cycle \leq 2.0%.

SPICE MODEL

PNP(Is=10f Xti=3 Eg=1.11 Vaf=100 Bf=133.8 Ise=1.678p Ne=2.159 Ikf=.1658 Nk=.901 Xtb=1.5 Var=100 Br=1 Isc=9.519n Nc=3.88 Ikr=5.813 Rc=7.838 Cjc=2.81p Mjc=.1615 Vjc=.8282 Fc=.5 Cje=2.695p Mje=.3214 Vje=.7026 Tr=11.32n Tf=97.83p Itf=69.29 Xtf=599u Vtf=10)

ORDERING INFORMATION

Device	Specific Marking Code	Package	Shipping [†]
NSVMMBTH81LT1G*	3D	SOT 23 (Pb Free)	3,000 / Tape & Reel
NSVMMBTH81LT3G*	3D	SOT 23 (Pb Free)	10,000 / Tape & Reel

+For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC Q101 Qualified and PPAP Capable.

MMBTH81



SOT 23 (TO 236) 2.90x1.30x1.00 1.90P CASE 318 ISSUE AU

DATE 14 AUG 2024

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	STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR	STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE		
STYLE 9:	STYLE 10:	STYLE 11:	STYLE 12:	STYLE 13:	STYLE 14:
PIN 1. ANODE	PIN 1. DRAIN	PIN 1. ANODE	PIN 1. CATHODE	PIN 1. SOURCE	PIN 1. CATHODE
2. ANODE	2. SOURCE	2. CATHODE	2. CATHODE	2. DRAIN	2. GATE
3. CATHODE	3. GATE	3. CATHODE-ANODE	3. ANODE	3. GATE	3. ANODE
STYLE 15:	STYLE 16:	STYLE 17:	STYLE 18:	STYLE 19:	
PIN 1. GATE	PIN 1. ANODE	PIN 1. NO CONNECTION	PIN 1. NO CONNECTION	PIN 1. CATHODE	
2. CATHODE	2. CATHODE	2. ANODE	2. CATHODE	2. ANODE	
3. ANODE	3. CATHODE	3. CATHODE	3. ANODE	3. CATHODE-ANODE	
	STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT	STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE 3.			

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