



MMST5551

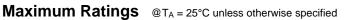
NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

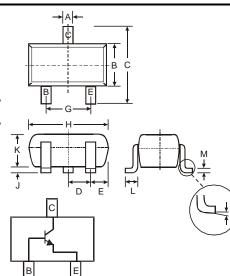
Features

- **Epitaxial Planar Die Construction**
- Complementary PNP Type Available (MMST5401)
- Ideal for Low Power Amplification and Switching
- Ultra-Small Surface Mount Package
- Lead Free/RoHS Compliant (Note 2)
- "Green" Device (Note 3 and 4)

Mechanical Data

- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 4. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Marking Information: K4N, See Page 3
- Ordering & Date Code Information: See Page 3
- Weight: 0.006 grams (approximate)





SOT-323							
Dim	Min	Max					
Α	0.25	0.40					
В	1.15	1.35					
С	2.00	2.20					
D	0.65 N	ominal					
Е	0.30	0.40					
G	1.20	1.40					
H	1.80	2.20					
J	0.0	0.10					
К	0.90	1.00					
L	0.25	0.40					
М	0.10	0.18					
α	0°	8°					
All Dimensions in mm							

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	180	V
Collector-Emitter Voltage	V _{CEO}	160	V
Emitter-Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous (Note 1)	lc	200	mA
Power Dissipation (Note 1)	Pd	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{ heta}JA$	625	°C/W
Operating and Storage Temperature Range	T _j , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)					
Collector-Base Breakdown Voltage	V _{(BR)CBO}	180	_	V	$I_{\rm C} = 100 \mu {\rm A}, I_{\rm E} = 0$
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	160	_	V	$I_{\rm C} = 1.0 {\rm mA}, I_{\rm B} = 0$
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6.0	_	V	$I_{E} = 10\mu A, I_{C} = 0$
Collector Cutoff Current	I _{CBO}	_	50	nA μA	V _{CB} = 120V, I _E = 0 V _{CB} = 120V, I _E = 0, T _A = 100°C
Emitter Cutoff Current	I _{EBO}		50	nA	$V_{EB} = 4.0V, I_{C} = 0$
ON CHARACTERISTICS (Note 5)					
DC Current Gain	h _{FE}	80 80 30	 250 	—	$I_{C} = 1.0mA, V_{CE} = 5.0V$ $I_{C} = 10mA, V_{CE} = 5.0V$ $I_{C} = 50mA, V_{CE} = 5.0V$
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	_	0.15 0.20	V	$I_{C} = 10mA$, $I_{B} = 1.0mA$ $I_{C} = 50mA$, $I_{B} = 5.0mA$
Base-Emitter Saturation Voltage	V _{BE(SAT)}	_	1.0	V	$I_{C} = 10mA, I_{B} = 1.0mA$ $I_{C} = 50mA, I_{B} = 5.0mA$
SMALL SIGNAL CHARACTERISTICS		-	-		
Output Capacitance	Cobo		6.0	pF	$V_{CB} = 10V, f = 1.0MHz, I_E = 0$
Small Signal Current Gain	h _{fe}	50	250		$V_{CE} = 10V, I_{C} = 1.0mA, f = 1.0kHz$
Current Gain-Bandwidth Product	f _T	100	300	MHz	$V_{CE} = 10V, I_{C} = 10mA, f = 100MHz$
Noise Figure	NF	_	8.0	dB	V_{CE} = 5.0V, I_C = 200 μ A, R_S = 1.0k Ω , f = 1.0kHz

1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which Notes: can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

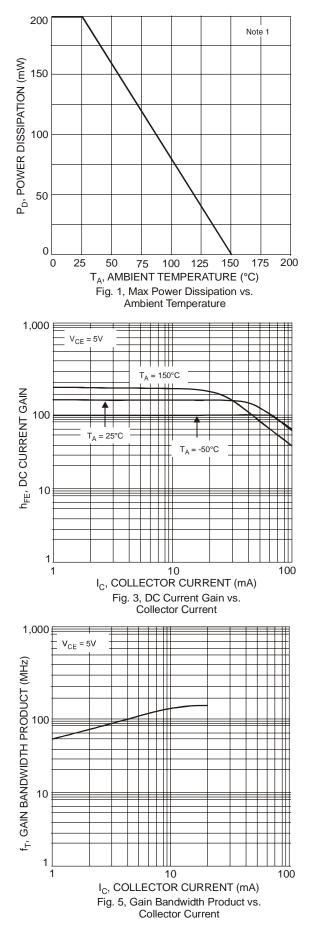
2. No purposefully added lead.

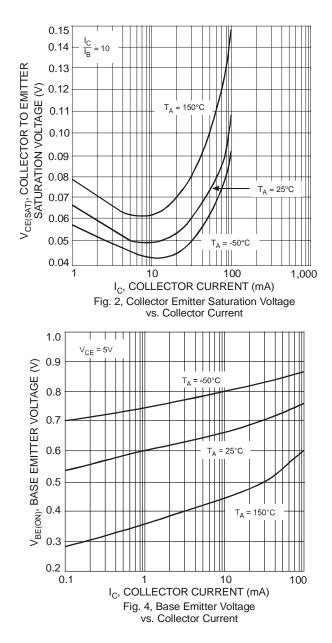
 Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.

5. Short duration pulse test used to minimize self-heating effect.

1 of 3 www.diodes.com







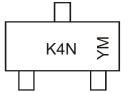


Ordering Information (Note 4 & 6)

Device	Packaging	Shipping
MMST5551-7-F	SOT-323	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



K4N= Product Type Marking Code YM = Date Code Marking Y = Year ex: N = 2002 M = Month ex: 9 = September

Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	к	L	М	Ν	Р	R	S	Т	U	V	W	Х	Y	Z
	-														
Month	Jan	Fe	b l	Mar	Apr	Мау	Ju	n	Jul	Aug	Sep	Oc	t	Nov	Dec

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