



Micro Commercial Components



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

# MMDT5451

## NPN/PNP Plastic-Encapsulate Transistors

### Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- One 5551-Type NPN ,One 5401-Type PNP
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:KNM
- Halogen free available upon request by adding suffix "-HF"

### Maximum Ratings @ 25°C Unless Otherwise Specified NPN 5551 Section

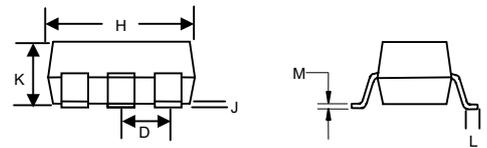
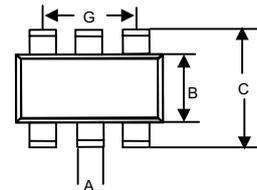
Symbol	Parameter	Rating	Unit
$V_{CE0}$	Collector-Emitter Voltage	160	V
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	0.2	A
$P_C$	Collector Dissipation	0.2	W
$R_{thJA}$	Thermal Resistance Junction to Ambient Air	625	W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

### Electrical Characteristics @ 25°C Unless Otherwise Specified

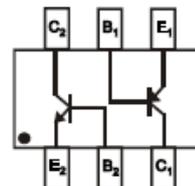
#### NPN 5551 Section

Symbol	Parameter	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=1mA_{dc}$ , $I_B=0$ )	160	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=100\mu A_{dc}$ , $I_E=0$ )	180	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ( $I_E=10\mu A_{dc}$ , $I_C=0$ )	6	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=120V_{dc}$ , $I_E=0$ )	---	0.05	$\mu A_{dc}$
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=4V_{dc}$ , $I_C=0$ )	---	0.05	$\mu A_{dc}$
$h_{FE}$	DC Current Gain ( $I_C=1mA_{dc}$ , $V_{CE}=5V_{dc}$ ) ( $I_C=10mA_{dc}$ , $V_{CE}=5V_{dc}$ ) ( $I_C=50mA_{dc}$ , $V_{CE}=5V_{dc}$ )	80 100 30	--- 300 ---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=10mA_{dc}$ , $I_B=1mA_{dc}$ ) ( $I_C=50mA_{dc}$ , $I_B=5mA_{dc}$ )	---	0.15 0.2	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=10mA_{dc}$ , $I_B=1mA_{dc}$ ) ( $I_C=50mA_{dc}$ , $I_B=5mA_{dc}$ )	---	1.0 1.0	Vdc
$f_T$	Current Gain-Bandwidth Product ( $V_{CE}=10V_{dc}$ , $I_C=10mA_{dc}$ , $f=100MHz$ )	100	300	MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=10V_{dc}$ , $f=1MHz$ , $I_E=0$ )	---	6.0	pF
NF	Noise Figure ( $V_{CE}=5V$ , $I_C=200\mu A$ , $R_S=1Kohm$ , $f=1KHz$ )	---	8.0	dB

### SOT-363



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.006	.014	0.15	0.35	
B	.045	.053	1.15	1.35	
C	.085	.096	2.15	2.45	
D	.026		0.65Nominal		
G	.047	.055	1.20	1.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.043	0.90	1.10	
L	.010	.018	0.26	0.46	
M	.003	.006	0.08	0.15	



E1, B1, C1 = PNP 5401  
E2, B2, C2 = NPN 5551

## Maximum Ratings @ 25°C Unless Otherwise Specified

PNP 5401 Section

Symbol	Parameter	Rating	Unit
$V_{CEO}$	Collector-Emitter Voltage	-150	V
$V_{CBO}$	Collector-Base Voltage	-160	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-0.2	A
$P_C$	Collector Dissipation	0.2	W
RthJA	Thermal Resistance Junction to Ambient Air	625	W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

PNP 5401 Section

Symbol	Parameter	Min	Max	Units
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=-1\text{mA}_{dc}$ , $I_B=0$ )	-150	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=-100\mu\text{A}_{dc}$ , $I_E=0$ )	-160	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ( $I_E=-10\mu\text{A}_{dc}$ , $I_C=0$ )	-5	---	Vdc
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=-120\text{Vdc}$ , $I_E=0$ )	---	-50	nAdc
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=-3\text{Vdc}$ , $I_C=0$ )	---	-50	nAdc
$h_{FE}$	DC Current Gain ( $I_C=-1\text{mA}_{dc}$ , $V_{CE}=-5\text{Vdc}$ ) ( $I_C=-10\text{mA}_{dc}$ , $V_{CE}=-5\text{Vdc}$ ) ( $I_C=-50\text{mA}_{dc}$ , $V_{CE}=-5\text{Vdc}$ )	50 100 50	--- 300 ---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=-10\text{mA}_{dc}$ , $I_B=-1\text{mA}_{dc}$ ) ( $I_C=-50\text{mA}_{dc}$ , $I_B=-5\text{mA}_{dc}$ )	--- ---	-0.2 -0.5	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=-10\text{mA}_{dc}$ , $I_B=-1\text{mA}_{dc}$ ) ( $I_C=-50\text{mA}_{dc}$ , $I_B=-5\text{mA}_{dc}$ )	--- ---	-1.0 -1.0	Vdc
$f_T$	Current Gain-Bandwidth Product ( $V_{CE}=-10\text{Vdc}$ , $I_C=-10\text{mA}_{dc}$ , $f=100\text{MHz}$ )	100	300	MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=-10\text{Vdc}$ , $f=1\text{MHz}$ , $I_E=0$ )	---	6.0	pF
NF	Noise Figure ( $V_{CE}=-5\text{V}$ , $I_C=-200\mu\text{A}$ , $R_S=10\text{ohm}$ , $f=1\text{KHz}$ )	---	8.0	dB



Micro Commercial Components

### Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel; 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

**\*\*\*IMPORTANT NOTICE\*\*\***

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications, enhancements, improvements, or other changes. **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages.

**\*\*\*LIFE SUPPORT\*\*\***

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

**\*\*\*CUSTOMER AWARENESS\*\*\***

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.