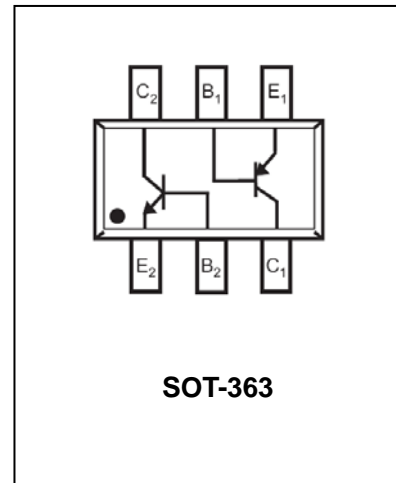


## Small Surface Mount Transistor

## MMDT5451

### FEATURES

- Complementary pair.
- Ideal for low power amplification and switching.
- Ultra-Small surface mount package.
- Epitaxial planar die construction.



### APPLICATIONS

- General switching and amplification.

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMDT5451	KNM	SOT-363

### MAXIMUM RATING NPN 5551 Section @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{CEO}$	Collector-Emitter Voltage	160	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	200	mA
$P_D$	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	°C/W
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	°C

### MAXIMUM RATING PNP 5401 Section @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	-160	V
$V_{CEO}$	Collector-Emitter Voltage	-150	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current -Continuous	-200	mA
$P_D$	Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	625	°C/W
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	°C



**Small Surface Mount Transistor**

**MMDT5451**

**ELECTRICAL CHARACTERISTICS NPN 5551 Section @ Ta=25°C unless otherwise specified**

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A$ $I_E=0$	180	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA$ $I_B=0$	160	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A$ $I_C=0$	6	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=120V$ $I_E=0$ $V_{CB}=120V$ $I_E=0$ , $T_A=100^\circ C$	-	50	nA uA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4V$ $I_C=0$	-	50	nA
DC current gain	$h_{FE}$	$V_{CE}=5V$ $I_C=1.0mA$	80	-	-
		$V_{CE}=5V$ $I_C=10mA$	80	250	
		$V_{CE}=5V$ $I_C=50mA$	30	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA$ $I_B=1mA$ $I_C=50mA$ $I_B=5mA$	-	0.15 0.2	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=10mA$ $I_B=1mA$ $I_C=50mA$ $I_B=5mA$	- -	1 1	V
Transition frequency	$f_T$	$V_{CE}=10V$ $I_C=10mA$ $f=100MHz$	100	300	MHz
Output Capacitance	$C_{obo}$	$V_{CB}=10V$ , $f=1.0MHz$ , $I_E=0$	-	6	pF
Noise Figure	NF	$V_{CE}=5V$ , $f=1.0kHz$ , $I_C=200\mu A$ $R_g=1.0k\Omega$	-	8.0	dB

**ELECTRICAL CHARACTERISTICS PNP 5401 Section @ Ta=25°C unless otherwise specified**

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-100\mu A$ $I_E=0$	-160	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-1.0mA$ $I_B=0$	-150	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\mu A$ $I_C=0$	-5	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=-120V$ $I_E=0$ $V_{CB}=-120V$ $I_E=0$ $T_A=100^\circ C$	-	-50	nA uA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=-3V$ $I_C=0$	-	-50	nA
DC current gain	$h_{FE}$	$V_{CE}=-5V$ $I_C=-1.0mA$	50	-	-
		$V_{CE}=-5V$ $I_C=-10mA$	60	240	
		$V_{CE}=-5V$ $I_C=-50mA$	50	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-10mA$ $I_B=-1.0mA$ $I_C=-50mA$ $I_B=-5.0mA$	-	-0.2 -0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=-10mA$ $I_B=-1.0mA$ $I_C=-50mA$ $I_B=-5.0mA$	-	-1.0	V
Transition frequency	$f_T$	$V_{CE}=-10V$ $I_C=-10mA$ $f=100MHz$	100	300	MHz
Output Capacitance	$C_{obo}$	$V_{CB}=-10V$ , $f=1.0MHz$ , $I_E=0$	-	6	pF
Noise Figure	NF	$V_{CE}=-5V$ $I_C=-200\mu A$ $f=1.0KHz$	-	8.0	dB

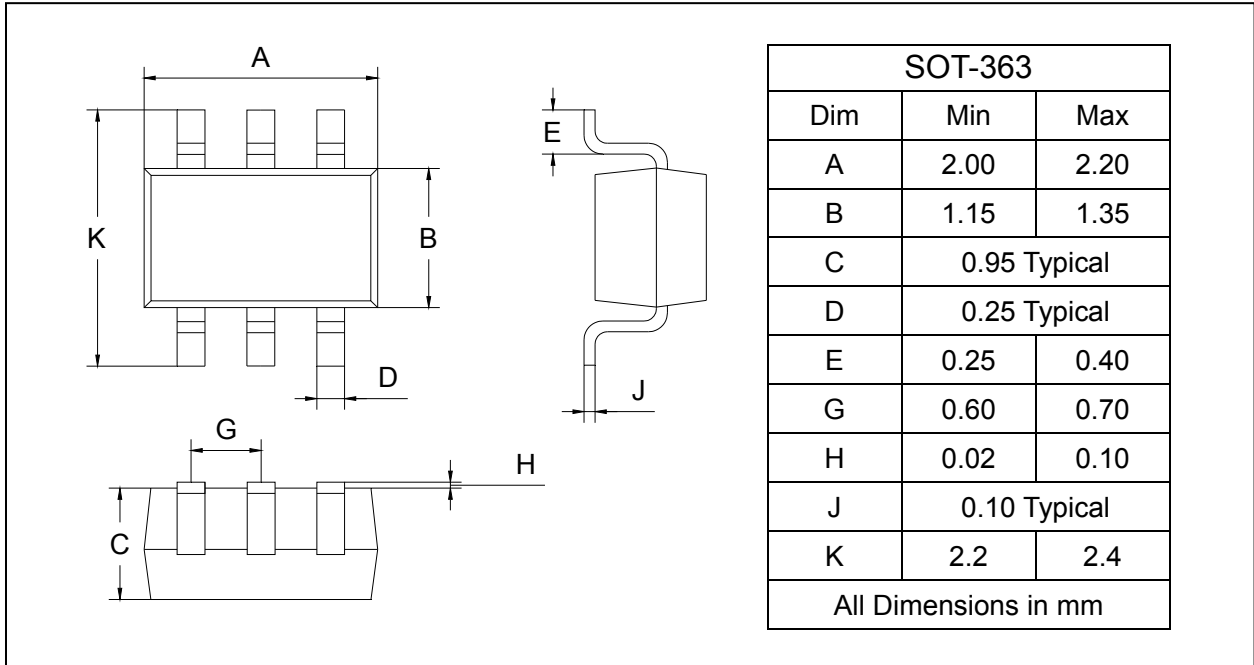
**Small Surface Mount Transistor**

**MMDT5451**

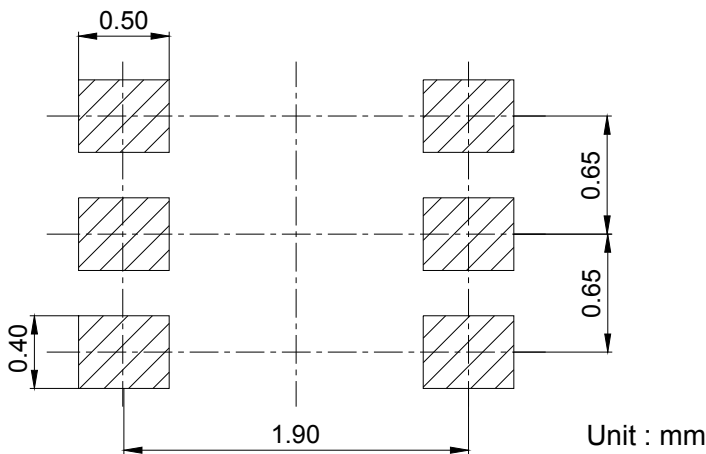
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-363



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

Device	Package	Shipping
MMDT5451	SOT-363	3000/Tape&Reel