



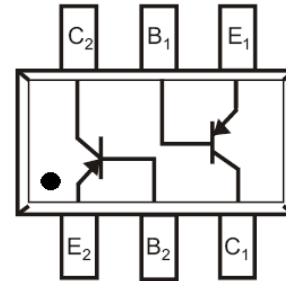
# MMDT5401

## Dual Bipolar Transistor(PNP+PNP)



### FEATURES

- Epitaxial planar die construction.
- Complementary NPN type available MMDT5551.
- Ultra-small surface mount package.



**SOT-363**

### APPLICATIONS

- For Low power amplification and switching.

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMDT5401	K4M	SOT-363

### MAXIMUM RATING @ 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

### ELECTRICAL CHARACTERISTICS @ 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 $\mu A$
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	-	-
		$V_{CE} = -5V$ $I_C = -10mA$	100	300	
		$V_{CE} = -5V$ $I_C = -50mA$	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

### TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

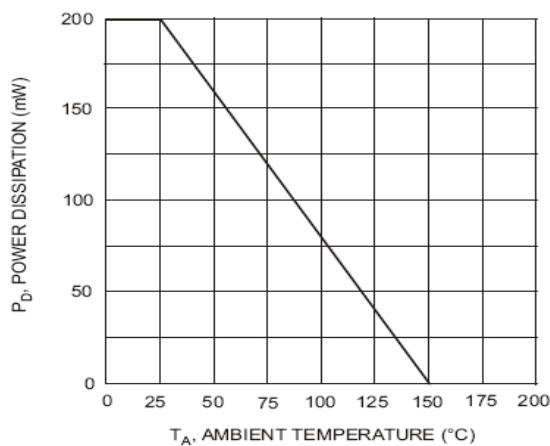


Fig. 1. Max Power Dissipation vs Ambient Temperature

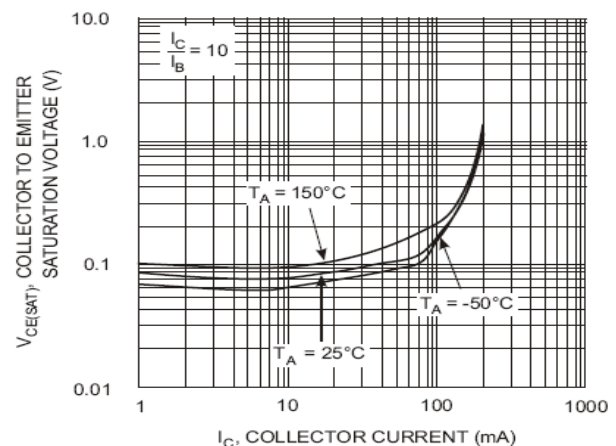
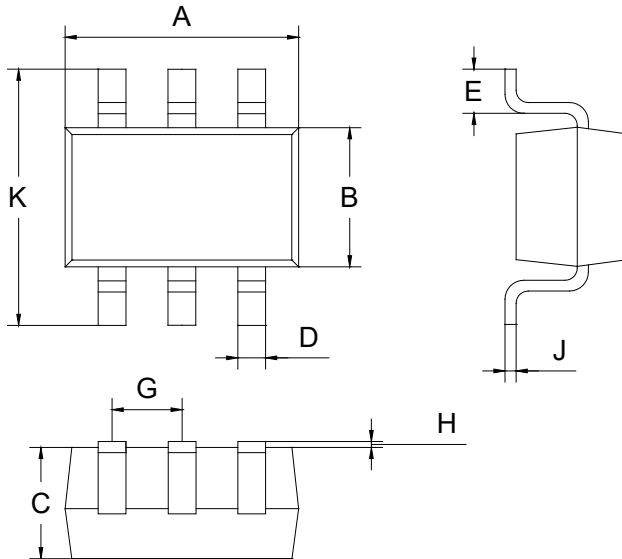


Fig. 2. Collector Emitter Saturation Voltage vs. Collector Current

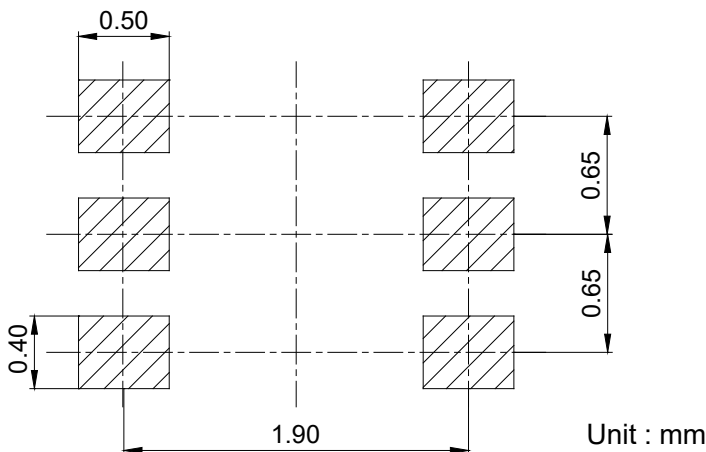
### PACKAGE OUTLINE

Plastic surface mounted package



SOT-363		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40
All Dimensions in mm		

### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

Device	Package	Shipping
MMDT5401	SOT-363	3000 pcs / Tape & Reel