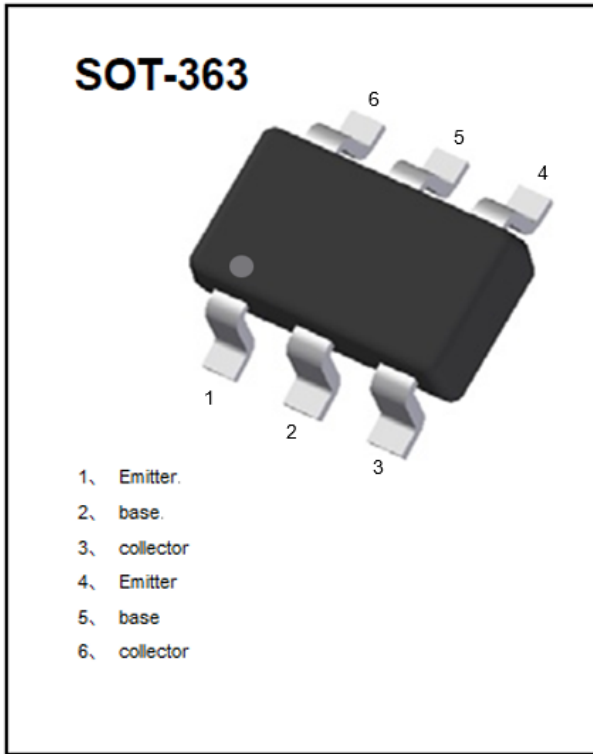


## Dual PNP Small Signal Transistor



### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Ultra-small surface mount package
- Part no. with suffix "Q" means AEC-Q101 qualified

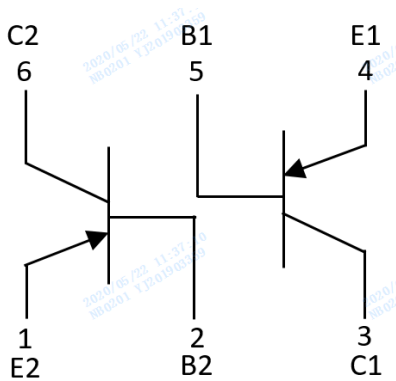
### Application

- Ideal for Medium Power Amplification and Switching

### Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** K4M

### Equivalent circuit



### Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMDT5401Q	F2	Approximate 0.009g	3000	30000	120000	7" reel



# MMDT5401Q

## ■Maximum Ratings (Ta=25°C Unless otherwise specified)

Item	Symbol	Unit	Value
Collector-Base Voltage	$V_{CBO}$	V	-160
Collector-Emitter Voltage	$V_{CEO}$	V	-150
Emitter-Base Voltage	$V_{EBO}$	V	-5
Collector Current	$I_C$	mA	-600
Total Device Dissipation (*)	$P_D$	mW	200
Thermal Resistance Junction to Ambient (*)	$R_{thJA}$	K/W	625
Junction Temperature	$T_J$	°C	150
Storage Temperature	$T_{STG}$	°C	-55 to +150

(\*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch

## ■Electrical Characteristics (Ta=25°C unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C = -100\mu A, I_E = 0$	-160		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C = -1mA, I_B = 0$	-150		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E = -10\mu A, I_C = 0$	-5		
Collector cut-off current	$I_{CBO}$	nA	$V_{CB} = -120V, I_E = 0$			-50
Emmitter cut-off current	$I_{EBO}$	nA	$V_{EB} = -3V, I_C = 0$			-50
DC current gain	$h_{FE}$		$V_{CE} = -5V, I_C = -1mA$	50		
	$h_{FE}$		$V_{CE} = -5V, I_C = -10mA$	100		300
	$h_{FE}$		$V_{CE} = -5V, I_C = -50mA$	50		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -10mA, I_B = -1mA$			-0.2
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -50mA, I_B = -5mA$			-0.5
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = -10mA, I_B = -1mA$			-1
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C = -50mA, I_B = -5mA$			-1
Output Capacitance	Cob	pF	$V_{CB} = -10V, I_E = 0, f = 1.0MHz$			6
Transition frequency	$f_T$	MHz	$V_{CE} = -10V, I_C = -10mA, f = 100MHz$	100		



## ■ Characteristics (Typical)

Fig.1 - Static characteristic

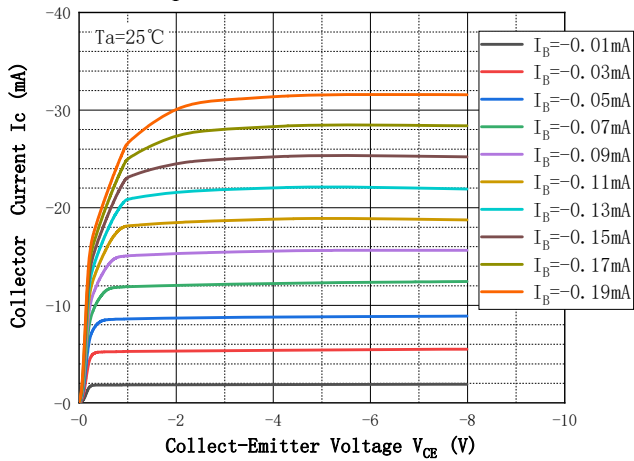


Fig.2 - DC Current Gain

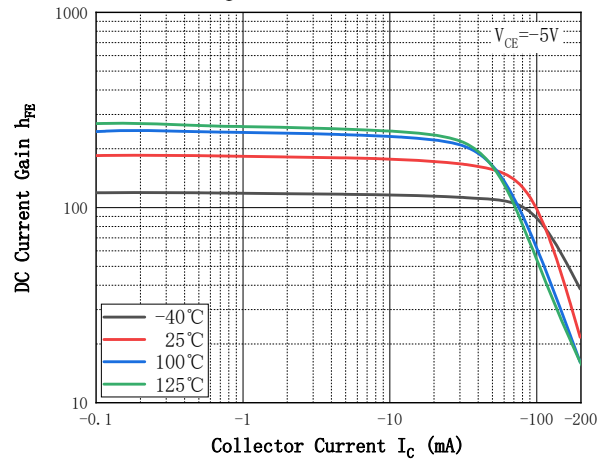


Fig.3 - Collect-Emittor Saturation Voltage

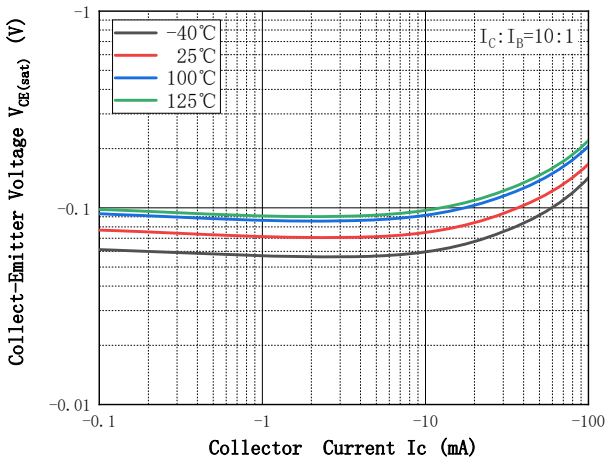


Fig.4 - Base-Emittor Voltage

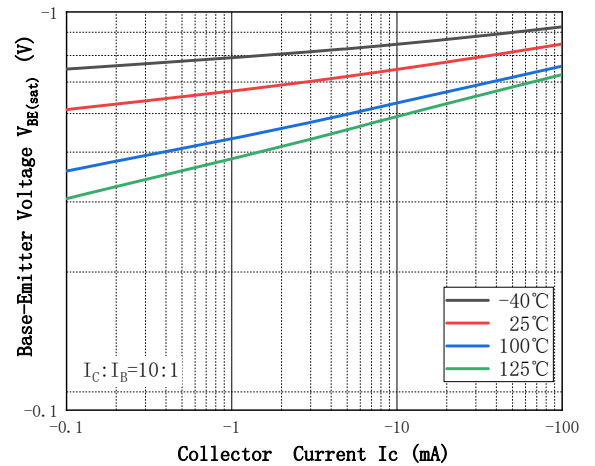


Fig.5 - Base-Emittor On Voltage

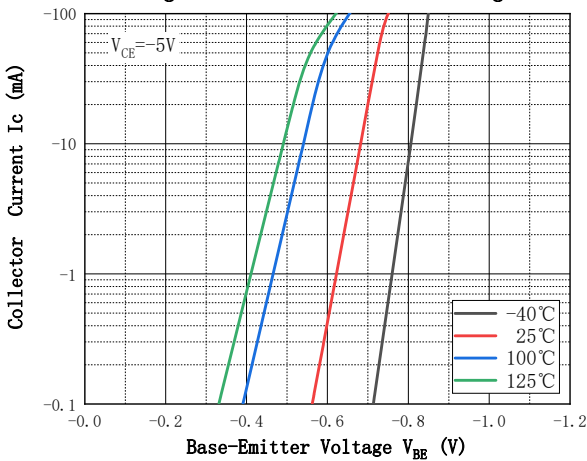
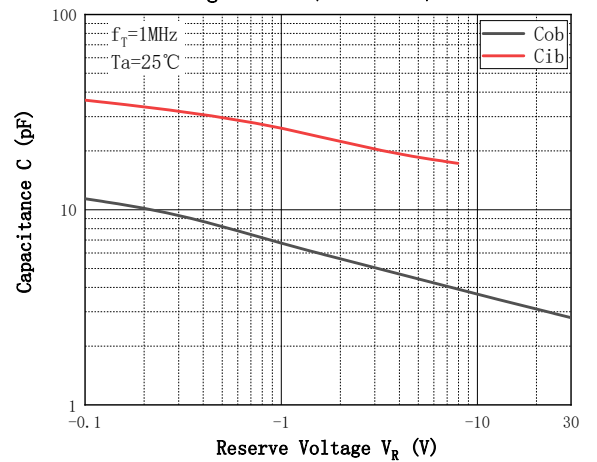


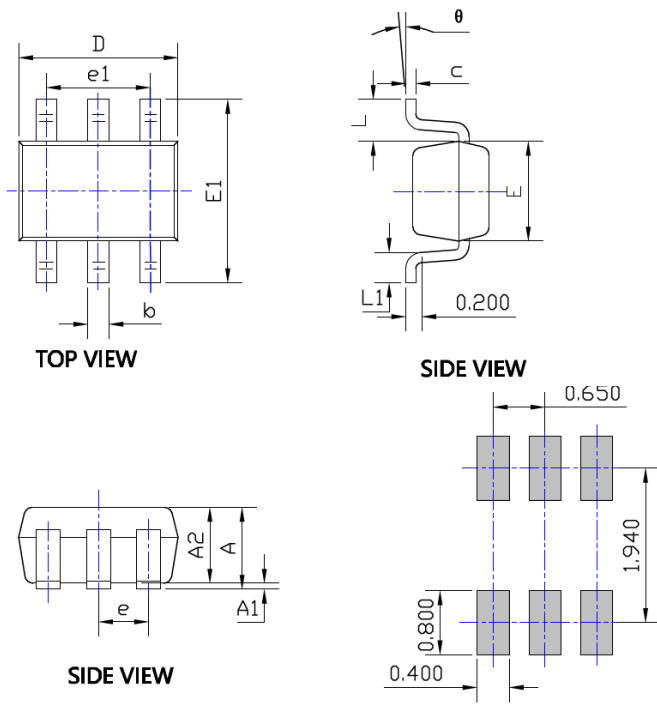
Fig.6 - Cob/Cib—VCB/VEB





# MMDT5401Q

## ■SOT-363 Package Outline Dimensions & Suggested Pad Layout



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
$\theta$	0°	8°	0°	8°

**NOTE:**  
 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.  
 2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.  
 3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

UNIT: mm

SUGGESTED SOLDER PAD LAYOUT



## MMDT5401Q

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