

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## FEATURES

- Complementary NPN Type Available (MMDT5551)
- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching

## MARKING

K4M

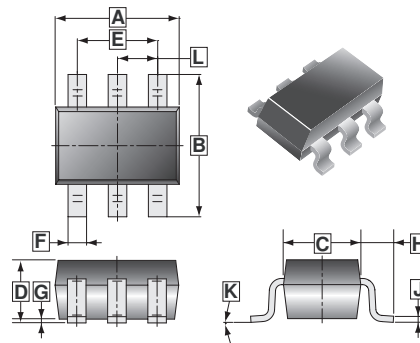
## PACKAGING DIMENSION

Package	MPQ	Leader Size
SOT-363	3K	7 inch

## ORDER INFORMATION

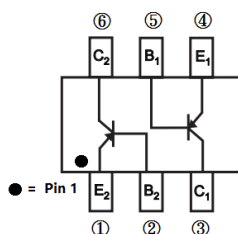
Part Number	Type
MMDT5401	Lead (Pb)-free
MMDT5401-C	Lead (Pb)-free and Halogen-free

## SOT-363



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100	REF.
B	1.80	2.45	H	0.525	REF.
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	8°	
E	1.10	1.50	L	0.650 TYP.	
F	0.10	0.35			

## EQUIVALENT CIRCUIT



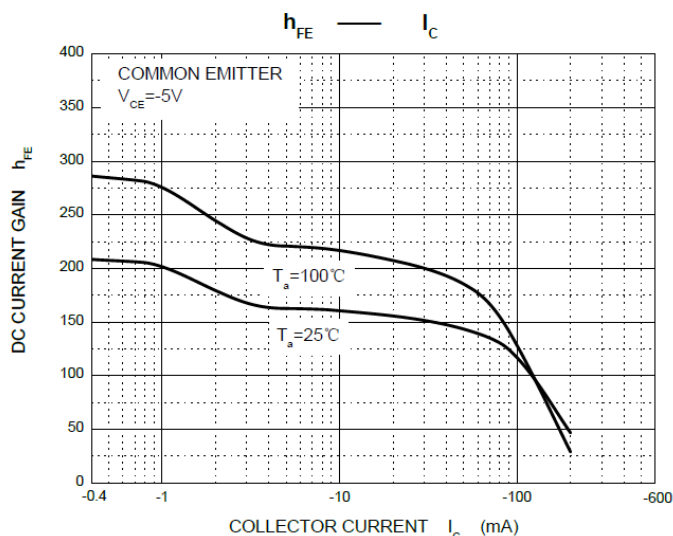
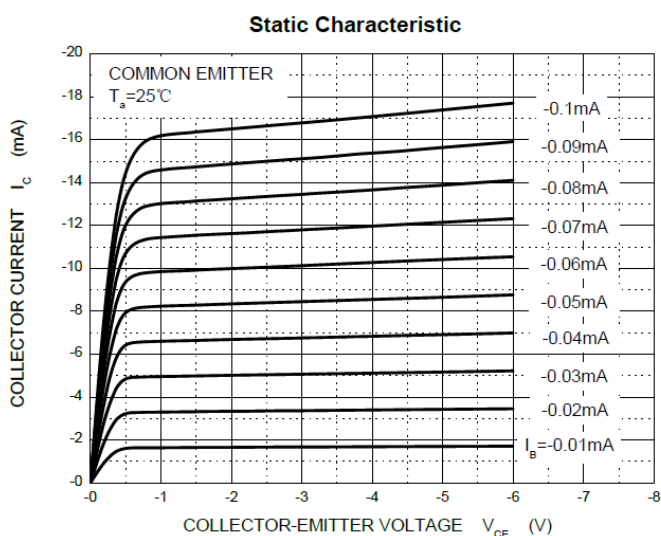
## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V <sub>CBO</sub>	-160	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-150	V
Emitter-Base Voltage	V <sub>EBO</sub>	-5	V
Collector Current -Continuous	I <sub>C</sub>	-0.2	A
Collector Power Dissipation	P <sub>C</sub>	0.2	W
Junction & Storage temperature	T <sub>J</sub> , T <sub>STG</sub>	150, -55~+150	°C

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-160	-	-	V	$I_C = -100\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-150	-	-	V	$I_C = -1\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-	-	V	$I_E = -10\mu\text{A}, I_C = 0$
Collector Cut-off Current	$I_{CBO}$	-	-	-0.05	$\mu\text{A}$	$V_{CB} = -120\text{V}, I_E = 0$
Emitter Cut-off Current	$I_{EBO}$	-	-	-0.05	$\mu\text{A}$	$V_{EB} = -3\text{V}, I_C = 0$
DC Current Gain	$h_{FE(1)}$	50	-	-		$V_{CE} = -5\text{V}, I_C = -1\text{mA}$
	$h_{FE(2)}$	100	-	240		$V_{CE} = -5\text{V}, I_C = -10\text{mA}$
	$h_{FE(3)}$	50	-	-		$V_{CE} = -5\text{V}, I_C = -50\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)1}$	-	-	-0.2	V	$I_C = -10\text{mA}, I_B = -1\text{mA}$
	$V_{CE(sat)2}$	-	-	-0.5	V	$I_C = -50\text{mA}, I_B = -5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)1}$	-	-	-1	V	$I_C = -10\text{mA}, I_B = -1\text{mA}$
	$V_{BE(sat)2}$	-	-	-1	V	$I_C = -50\text{mA}, I_B = -5\text{mA}$
Transition Frequency	$f_T$	100	-	-	MHz	$V_{CE} = -10\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$
Output Capacitance	$C_{OB}$	-	6	-	pF	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$
Noise Figure	NF	-	-	8	dB	$V_{CE} = -5.0\text{V}, I_C = -200\mu\text{A}, R_S = 10\Omega, f = 1.0\text{kHz}$

**CHARACTERISTIC CURVES**



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