

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

### FEATURES

- Epitaxial Planar Die Construction
- Ideal for Low Power Amplification and Switching

### MARKING

K2X

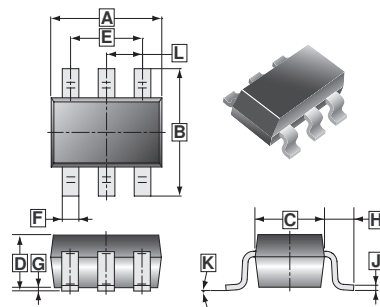
### PACKAGING DIMENSION

Package	MPQ	Leader Size
SOT-363	3K	7 inch

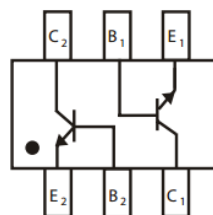
### ORDER INFORMATION

Part Number	Type
MMDT4401-C	Lead (Pb)-free and Halogen-free

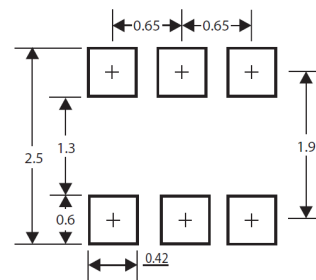
### SOT-363



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.10	REF.
B	1.80	2.45	H	0.525	REF.
C	1.15	1.35	J	0.05	0.25
D	0.70	1.10	K	8°	
E	1.30 REF.		L	0.65 TYP.	
F	0.10	0.35			



### Mounting Pad Layout



\*Dimensions in millimeters

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

Parameter	Symbol	Ratings	Unit
Collector-Base Voltage	V <sub>CB0</sub>	60	V
Collector-Emitter Voltage	V <sub>CE0</sub>	40	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Collector Current-Continuous	I <sub>C</sub>	0.6	A
Power Dissipation	P <sub>C</sub>	0.2	W
Junction, Storage Temperature Range	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	$V_{(BR)CBO}$	60	-	-	V	$I_C=10\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40	-	-		$I_C=1\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	-	-		$I_E=100\mu\text{A}, I_C=0$
Collector Cut-off Current	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	$V_{CB}=50\text{V}, I_E=0$
Collector Cut-off Current	$I_{CEO}$	-	-	0.1		$V_{CE}=35\text{V}, I_B=0$
Emitter Cut-off Current	$I_{EBO}$	-	-	0.1		$V_{EB}=5\text{V}, I_C=0$
DC Current Gain	$h_{FE}$	20	-	-		$V_{CE}=1\text{V}, I_C=0.1\text{mA}$
		40	-	-		$V_{CE}=1\text{V}, I_C=1\text{mA}$
		80	-	-		$V_{CE}=1\text{V}, I_C=10\text{mA}$
		100	-	300		$V_{CE}=1\text{V}, I_C=150\text{mA}$
		40	-	-		$V_{CE}=2\text{V}, I_C=500\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=150\text{mA}, I_B=15\text{mA}$
		-	-	0.75		$I_C=500\text{mA}, I_B=50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.75	-	0.95	V	$I_C=150\text{mA}, I_B=15\text{mA}$
		-	-	1.2		$I_C=500\text{mA}, I_B=50\text{mA}$
Transition Frequency	$f_T$	250	-	-	MHz	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=100\text{MHz}$
Output Capacitance	$C_{ob}$	-	-	6.5	pF	$V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$
Delay time	$t_d$	-	-	15	nS	$V_{CC}=30\text{V}, V_{BE}=2\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$
Rise time	$t_r$	-	-	20		
Storage time	$t_s$	-	-	225	nS	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=-I_{B2}=15\text{mA}$
Fall time	$t_f$	-	-	30		

**CHARACTERISTIC CURVES**

