



**Plastic-Encapsulate Transistors**

DUAL TRANSISTOR (PNP+PNP)

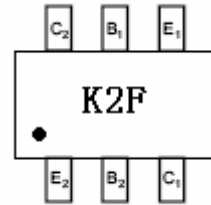
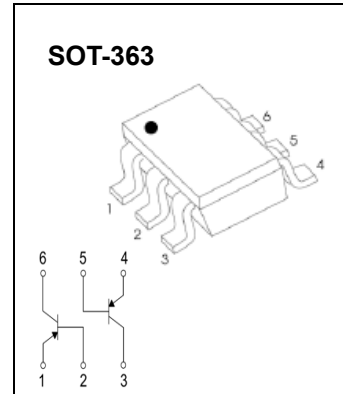
**FEATURE**

- Complementary NPN Type available MMDT2222ADW

**MARKING: K2F**

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

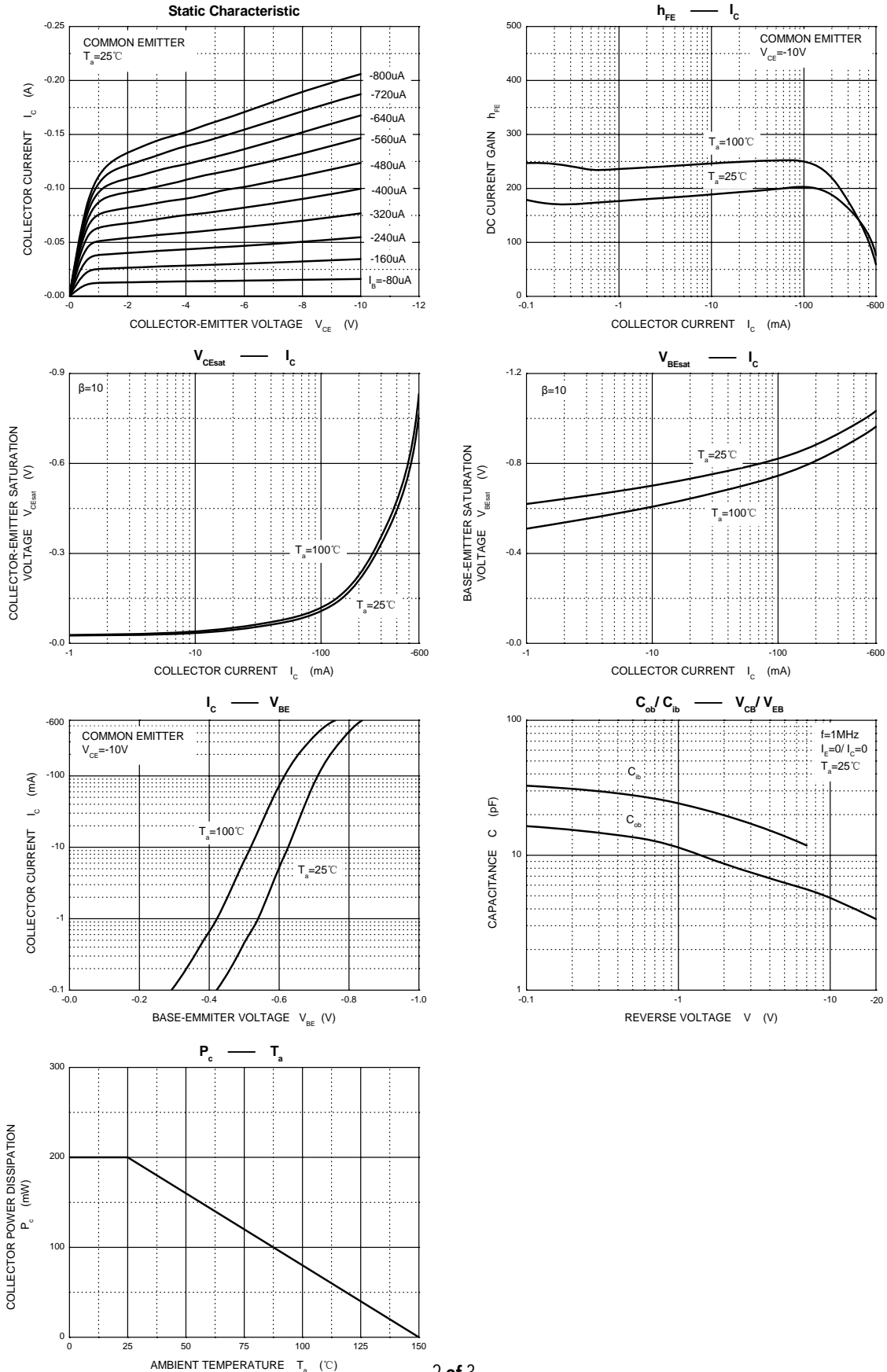
Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	-60	V
V <sub>CE0</sub>	Collector-Emitter Voltage	-60	V
V <sub>EB0</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-600	mA
P <sub>C</sub>	Collector Power Dissipation	200	mW
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C



**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

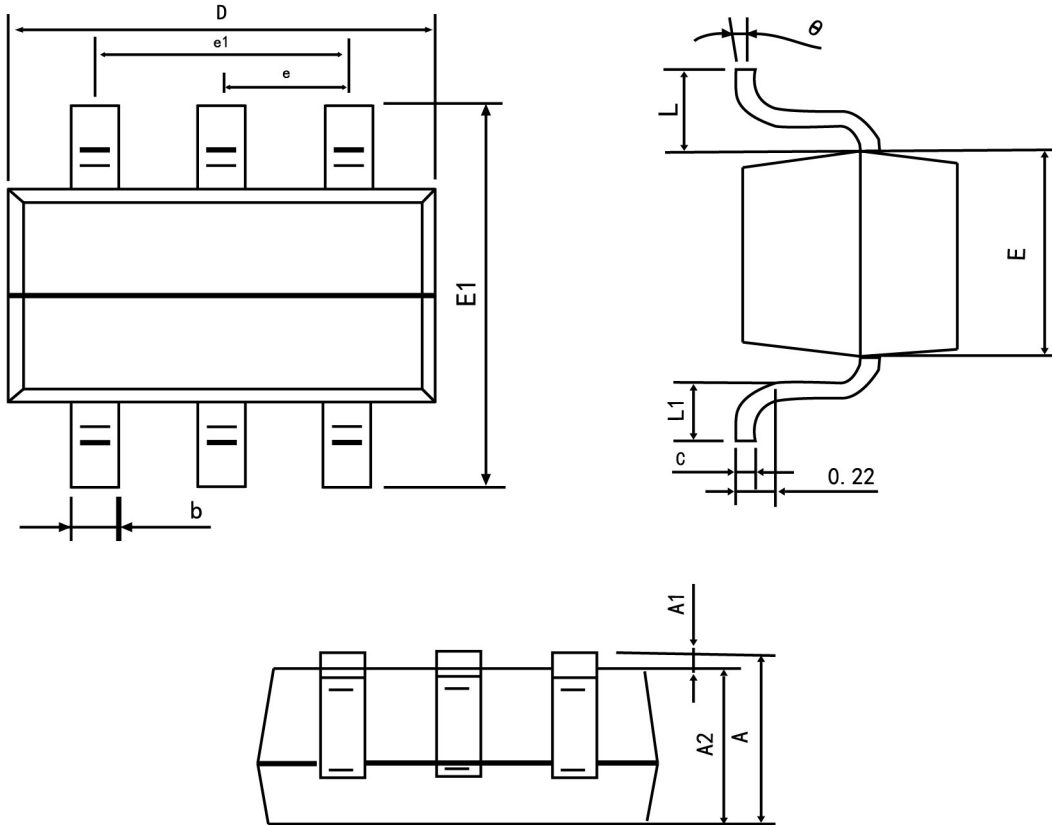
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA, I <sub>E</sub> =0	-60		V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -10mA, I <sub>B</sub> =0	-60		V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0	-5		V
Collector cut-off current	I <sub>CB0</sub>	V <sub>CB</sub> =-50V, I <sub>E</sub> =0		-10	nA
Collector cut-off current	I <sub>CEx</sub>	V <sub>CE</sub> =-30V, V <sub>EB(off)</sub> =-0.5V		-50	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =-5V, I <sub>C</sub> =0		-10	nA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> = -0.1mA	75		
	h <sub>FE(2)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> = -1mA	100		
	h <sub>FE(3)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA	100		
	h <sub>FE(4)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> = -150mA	100	300	
	h <sub>FE(5)</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-500mA	50		
Collector-emitter saturation voltage	V <sub>CE(sat)1</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA		-0.4	V
	V <sub>CE(sat)2</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> =- 50mA		-1.6	V
Base-emitter saturation voltage	V <sub>BE(sat)1</sub>	I <sub>C</sub> =-150mA, I <sub>B</sub> =-15mA		-1.3	V
	V <sub>BE(sat)2</sub>	I <sub>C</sub> =-500mA, I <sub>B</sub> = -50mA		-2.6	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-20V, I <sub>C</sub> = -50mA, f=100MHz	200		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> = 0, f=1MHz		8	pF
Input Capacitance	C <sub>ib</sub>	V <sub>EB</sub> =-2V, I <sub>C</sub> = 0, f=1MHz		30	pF
Delay time	t <sub>d</sub>	V <sub>CC</sub> =-30V, I <sub>C</sub> =-150mA, I <sub>B1</sub> =-15mA		10	nS
Rise time	t <sub>r</sub>			40	nS
Storage time	t <sub>s</sub>	V <sub>CC</sub> =-6V, I <sub>C</sub> =-150mA,		225	nS
Fall time	t <sub>f</sub>	I <sub>B1</sub> = I <sub>B2</sub> = -15mA		60	nS

## Typical Characteristics





## SOT-363-Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP	
e1	1.200	1.400
L	0.525 REF	
L1	0.260	0.460
theta	0°	8°