

Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+NPN)

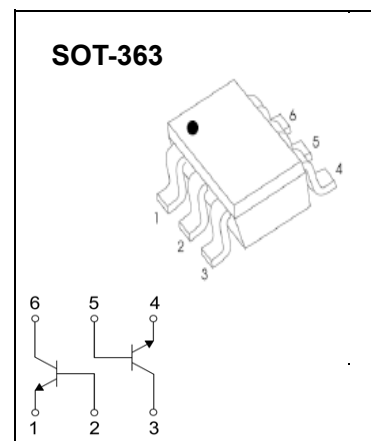
FEATURES

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

MRKING:K2X

Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

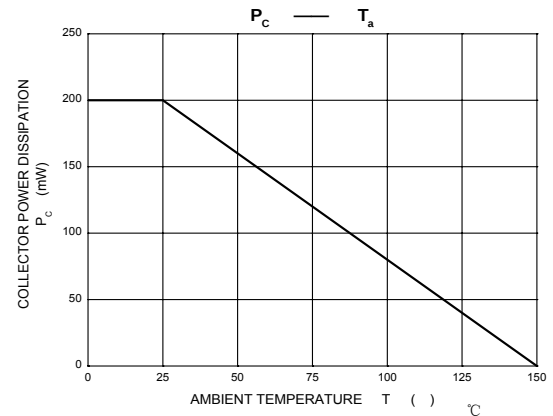
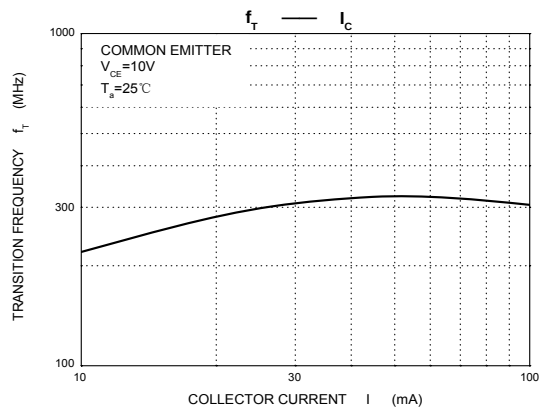
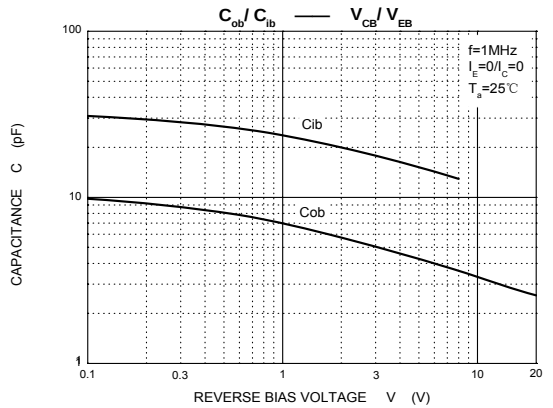
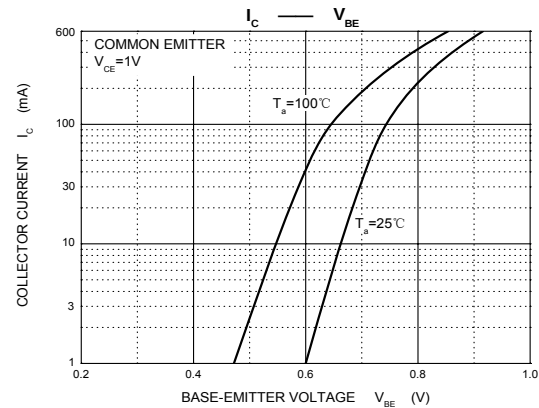
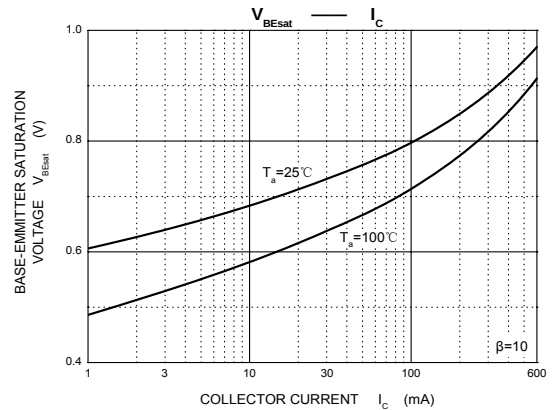
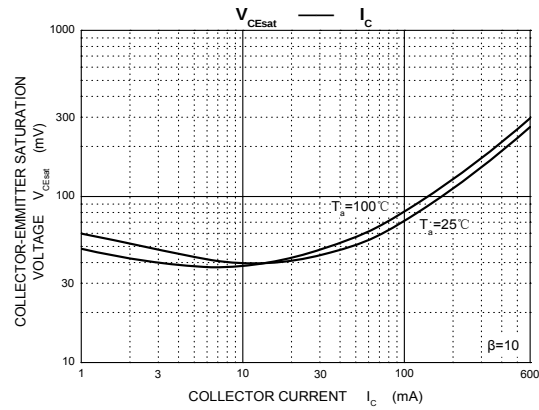
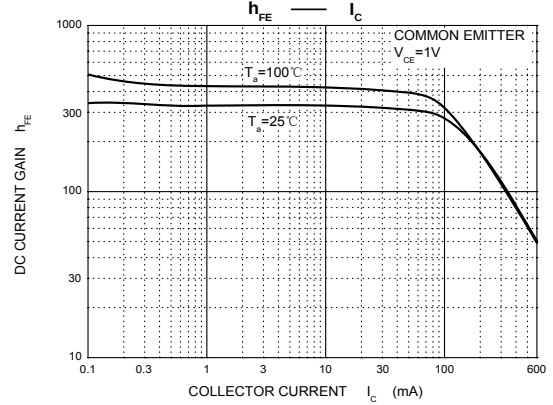
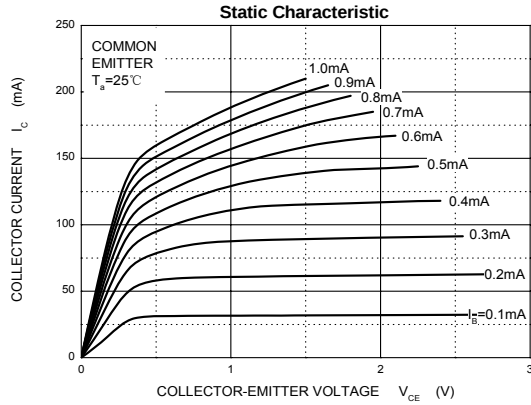
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	0.6	A
P_C	Collector Power Dissipation	0.2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	625	$^\circ\text{C}/\text{W}$
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature	-55 to +150	$^\circ\text{C}$



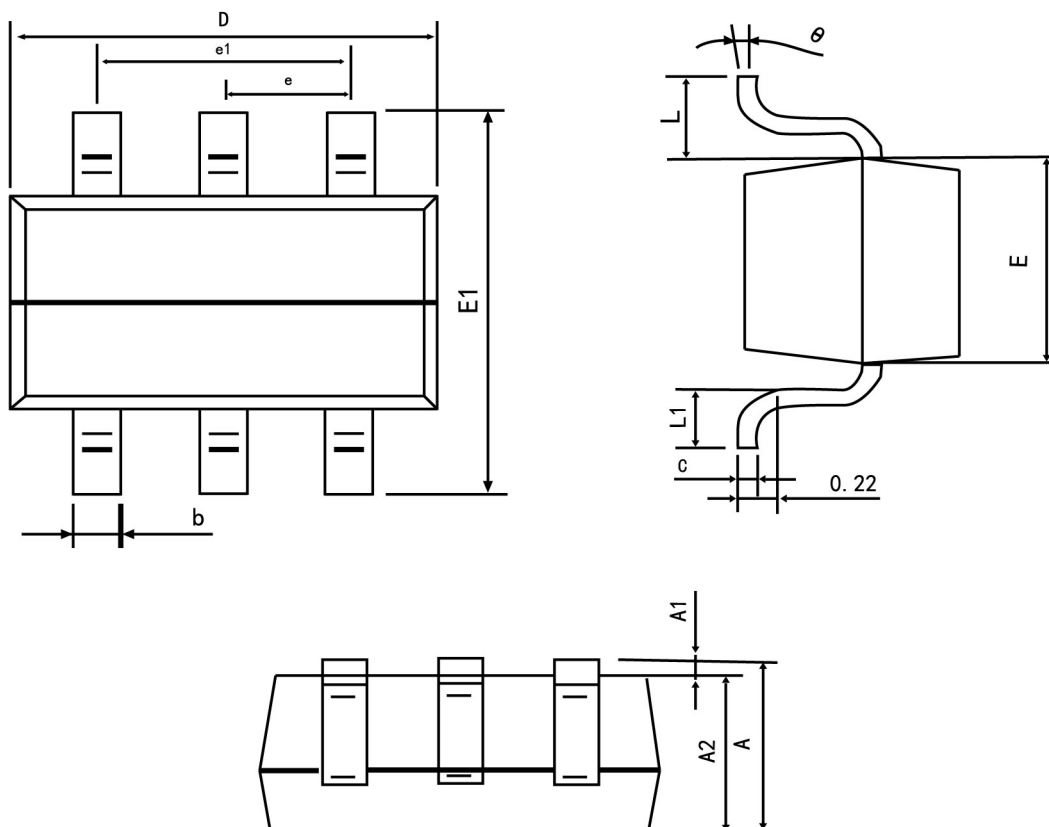
NPN 4401 ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100 \mu\text{A}, I_C = 0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB} = 50\text{V}, I_E = 0$		0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 35\text{V}, I_B = 0$		0.5	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$		0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 1\text{V}, I_C = 0.1\text{mA}$	20		
	$h_{FE(2)}$	$V_{CE} = 1\text{V}, I_C = 1\text{mA}$	40		
	$h_{FE(3)}$	$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	80		
	$h_{FE(4)}$	$V_{CE} = 1\text{V}, I_C = 150\text{mA}$	100	300	
	$h_{FE(5)}$	$V_{CE} = 2\text{V}, I_C = 500\text{mA}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$		0.4	V
	$V_{CE(sat)2}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		0.75	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$	0.75	0.95	V
	$V_{BE(sat)2}$	$I_C = 500\text{mA}, I_B = 50\text{mA}$		1.2	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 100\text{MHz}$	250		MHz
Output capacitance	C_{ob}	$V_{CB} = 5\text{V}, I_E = 0, f = 1\text{MHz}$		6.5	pF
Delay time	t_d	$V_{CC} = 30\text{V}, V_{BE} = 2\text{V}, I_C = 150\text{mA}, I_{B1} = 15\text{mA}$		15	nS
Rise time	t_r			20	nS
Storage time	t_s			225	nS
Fall time	t_f	$V_{CC} = 30\text{V}, I_C = 150\text{mA}, I_{B1} = -I_{B2} = 15\text{mA}$		30	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
θ	0°	8°