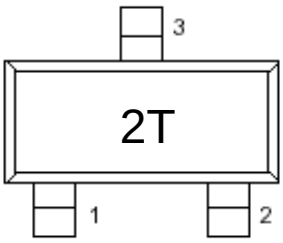
Kingtronics®

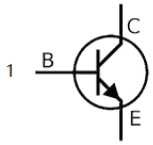
CDS4403-ME

SWITCHING TRANSISTOR

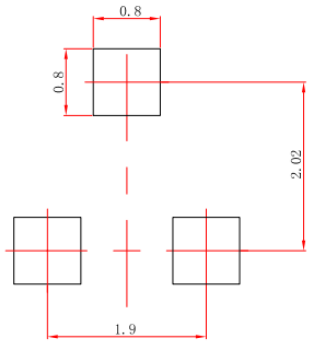
Marking:2T



Top view



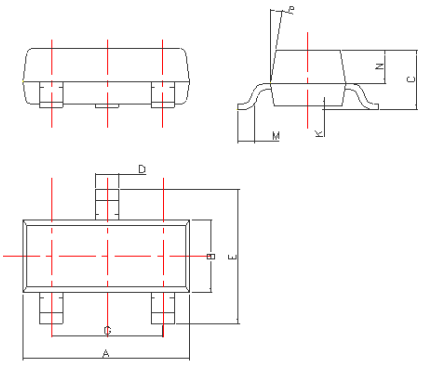
Suggested Layout



(±0.05mm)

SOT-23

Dimension



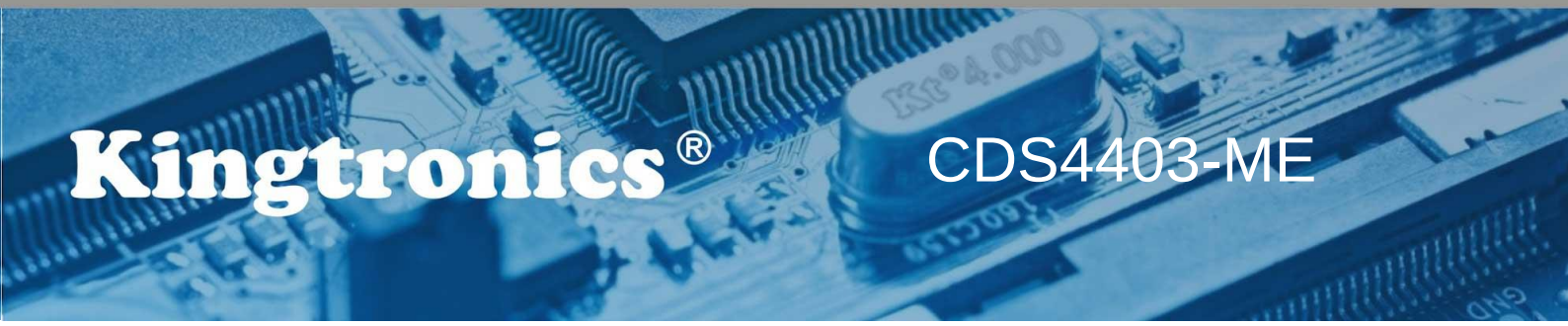
DIM	Millimeters
A	2.85~3.04
B	1.30±0.10
C	1.00±0.10
D	0.45±0.05
E	2.25~2.55
G	1.90±0.1
K	0.00-0.10
M	0.20 min
N	0.60±0.10
P	7±2°

MAXIMUM RATINGS (Ta=25℃)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	-40	Vdc
Collector-Base Voltage	V_{CBO}	-40	Vdc
Emitter-Base Voltage	V_{EBO}	-5	Vdc
Collector Current - Continuous	I_C	-600	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (1) (T_A=25℃)	P_D	225	mW
Derate above 25℃		1.8	mW/℃
Thermal Resistance Junction to Ambient	R_{JA}	556	℃/W
Total Device Dissipation Alumina Substrate, (2) T_A=25℃	P_D	300	mW
Derate above 25℃		2.4	mW/℃
Thermal Resistance Junction to Ambient	R_{JA}	417	℃/W
Junction and Storage Temperature	T_J, T_{stg}	150, -55~150	℃



ELECTRICAL CHARACTERISTICS (TA=25℃ unless otherwise noted)

Characteristic	Symbol	Test Condition	Min	Type	Max	Unit
Collector Cutoff Current	I_{CEX}	V_{CE}=-35Vdc, V_{EB}=-0.4Vdc	--	--	-100	nAdc
Base Cutoff Current	I_{BEX}	V_{CE}=-35Vdc, V_{EB}=-0.4Vdc	--	--	-100	nAdc
Collector-Emitter Breakdown Voltage (3)	$V_{(BR)CEO}$	I_C=-1.0mAdc, I_B=0	-40	--	--	Vdc
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=-100μAdc, I_E=0	-40	--	--	Vdc
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=-100μAdc, I_C=0	-5	--	--	Vdc
DC Current Gain	h_{FE}	I_C=-0.1mAdc, V_{CE}=-1.0Vdc	30	--	--	--
		I_C=-1.0mAdc, V_{CE}=-1.0Vdc	30	--	--	
		I_C=-10mAdc, V_{CE}=-1.0Vdc	100	--	--	
		I_C=-150mAdc, V_{CE}=-2.0Vdc	100	--	300	
		I_C=-500mAdc, V_{CE}=-2.0 mAdc	20	--	--	
Collector-Emitter Saturation Voltage (3)	$V_{CE\ (sat)}$	I_C=-150mAdc, I_B=-15Vdc	--	--	-0.4	Vdc
		I_C=-500mAdc, I_B=-50Vdc	--	--	-0.75	
Base-Emitter Saturation Voltage	$V_{BE\ (sat)}$	I_C=-150mAdc, I_B=-15Vdc	-0.75	--	-0.95	Vdc
		I_C=-500mAdc, I_B=-50Vdc	--	--	-1.3	
Current-Gain-Bandwidth Product	f_T	I_C=-20mAdc, V_{CE}=-10Vdc f=100MH_Z	200	--	--	MHz
Output Capacitance	C_{obo}	V_{CB}=-10Vdc,I_E=0, f=1.0MHz	--	--	8.5	pF
Input Capacitance	C_{ibo}	V_{EB}=-0.5Vdc,I_C=0, f=1.0MHz	--	--	30	pF
Input Impedance	h_{ie}	V_{CE}=-10Vdc,I_C=-1.0mAdc, f=1.0KHz	1.0	--	15	kΩ
Voltage Feedback Ratio	h_{re}	V_{CE}=-10Vdc,I_C=-1.0mAdc,f=1.0KHz	0.5	--	8.0	$x10^{-4}$
Small-Signal Current Gain	h_{fe}	V_{CE}=-10Vdc,I_C=-1.0mAdc,f=1.0KHz	100	--	500	
Output Admittance	*h_{oe}	V_{CE}=-10Vdc,I_C=-1.0mAdc,f=1.0KHz	1.0	--	100	μmhos
Delay Time	t_d	V_{CC}=-30Vdc,V_{BE}=-2.0Vdc, I_C=-150mAdc,I_{B1}=-15mAdc	--	--	15	nS
Rise Time	t_r		--	--	20	
Storage Time	t_s	VCC=-30Vdc,IC=-150mAdc, IB1=IB2=-15mAdc	--	--	225	nS
Fall Time	t_f		--	--	30	

1. FR-5=1.0x0.75x0.062in.
2. Alumina=0.4x0.3x0.024in, 99.5% alumina.
3. Pulse Width ≤300μS; Duty Cycle ≤2.0%.

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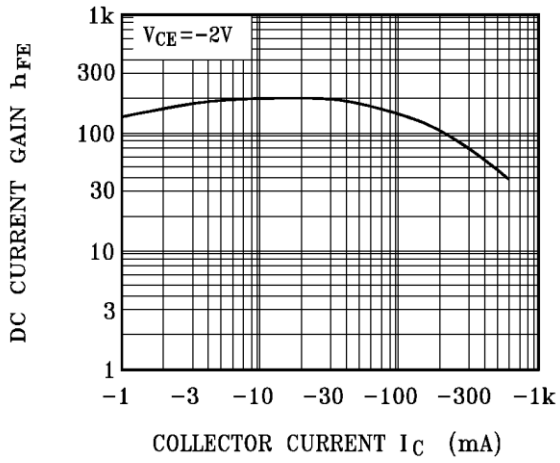
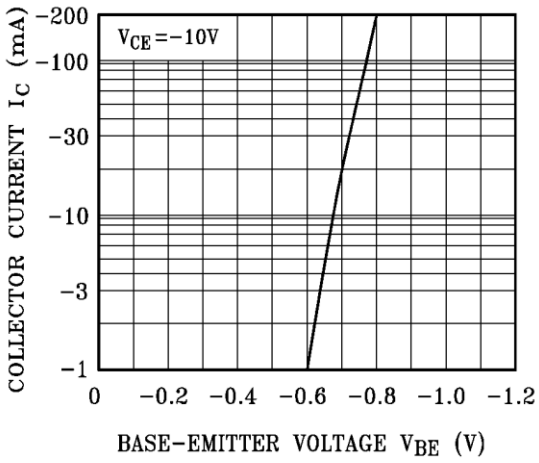
CDS4403-ME

Typical Performance Characteristics

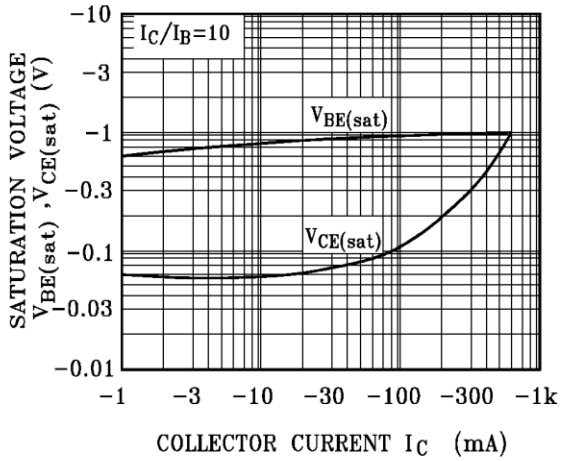
h_{FE} – I_C



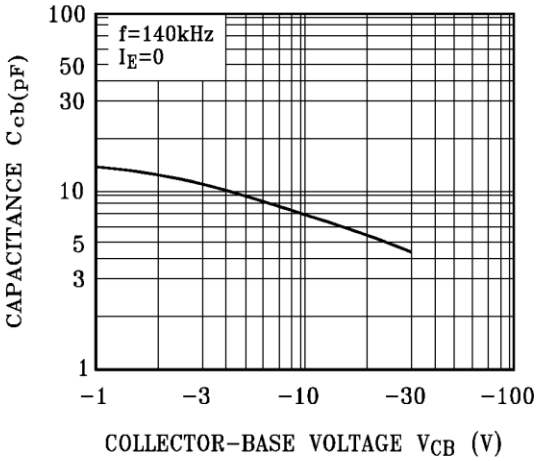
I_C – V_{BE}



$V_{BE(sat)}$,$V_{CE(sat)}$ – I_C



C_{cb} – V_{CB}



Note: Specifications are subject to change without notice.