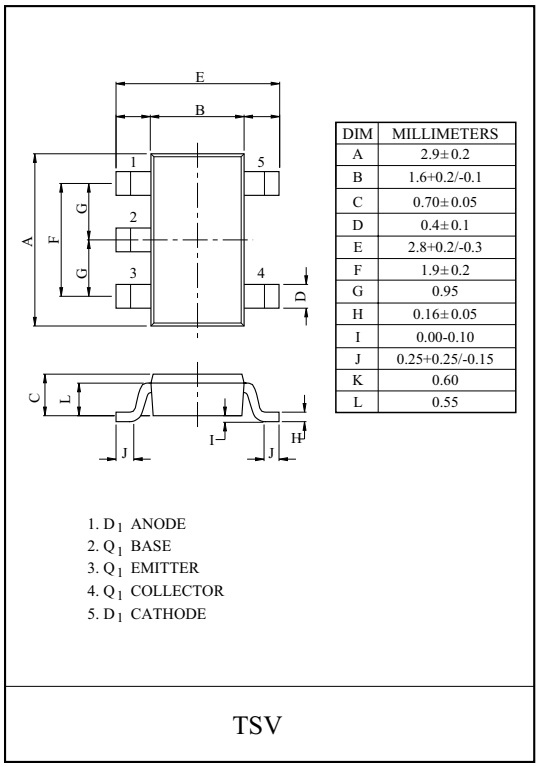
KTX412T

EPITAXIAL PLANAR NPN TRANSISTOR
SILICON EPITAXIAL PLANAR TYPE DIODE

GENERAL PURPOSE APPLICATION.
ULTRA HIGH SPEED SWITCHING APPLICATION.

FEATURES

- Including two(TR, Diode) devices in TSV.
  (Thin Super Mini type with 5 pin)
- Simplify circuit design.
- Reduce a quantity of parts and manufacturing process.

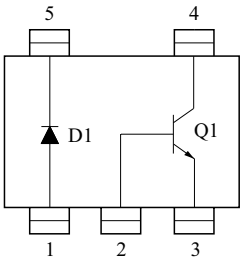


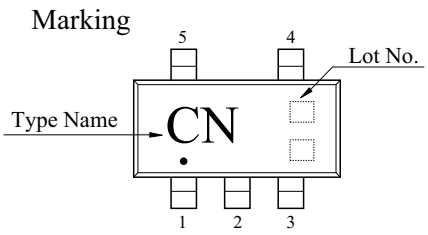
DIM	MILLIMETERS
A	2.9± 0.2
B	1.6+0.2/-0.1
C	0.70± 0.05
D	0.4± 0.1
E	2.8+0.2/-0.3
F	1.9± 0.2
G	0.95
H	0.16± 0.05
I	0.00-0.10
J	0.25+0.25/-0.15
K	0.60
L	0.55

1. D_1 ANODE
2. Q_1 BASE
3. Q_1 EMITTER
4. Q_1 COLLECTOR
5. D_1 CATHODE

TSV

EQUIVALENT CIRCUIT (TOP VIEW)





MAXIMUM RATINGS (Ta=25℃)

TRANSISTOR Q_1

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1.5	A
	I_{CP}	3	A
Collector Power Dissipation	P_C *	0.9	W
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55~125	℃

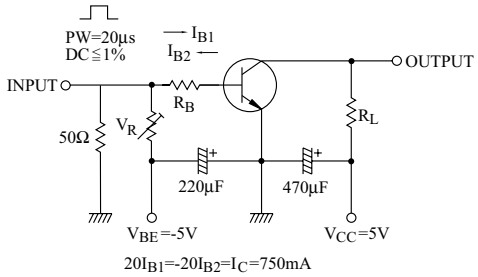
* Package mounted on a ceramic board (600㎟×0.8㎜)

DIODE D_1

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	V_{RRM}	25	V
Reverse Voltage	V_R	20	V
Average Forward Current	I_O	1.0	A
Non-Repetitive Peak Surge current	I_{FSM}	3	A
Junction Temperature	T_j	125	℃
Storage Temperature	T_{stg}	-55~125	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃)

TRANSISTOR Q_1

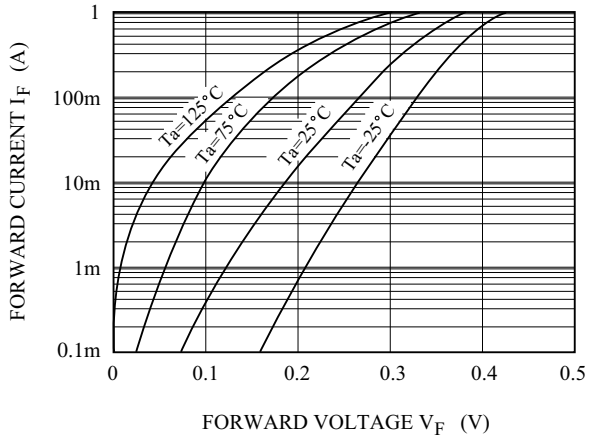
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=12V, I_E=0	-	-	0.1	μA
Emitter Cut-off Current		I_{EBO}	V_{EB}=4V, I_C=0	-	-	0.1	μA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	I_C=10μA, I_E=0	20	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C=1mA, I_B=0	20	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	I_E=10μA, I_C=0	5	-	-	V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=750mA, I_B=15mA	-	130	200	mV
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	I_C=750mA, I_B=15mA	-	0.85	1.2	V
DC Current Gain		h_{FE}	V_{CE}=2V, I_C=100mA	200	-	560	
Transition Frequency		f_T	V_{CE}=2V, I_C=300mA	-	210	-	MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V, f=1MHz	-	20	-	pF
Swiitching Time	Turn-On Time	t_{on}		-	40	-	nS
	Storage Time	t_{stg}		-	180	-	
	Fall Time	t_f		-	20	-	

DIODE D_1

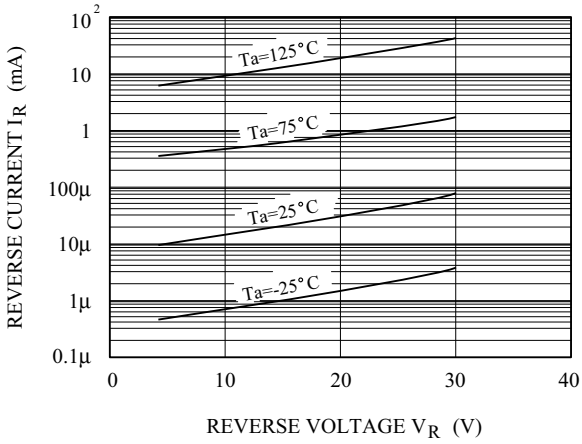
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT.
Forward Voltage	V_F	I_F=1.0A	-	0.4	0.45	V
Reverse Current	I_R	V_R=20V	-	-	200	μA

D_1 (DIODE)

I_F - V_F

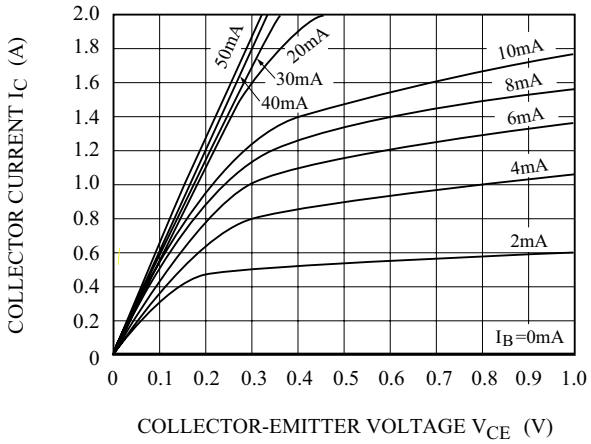


I_R - V_R

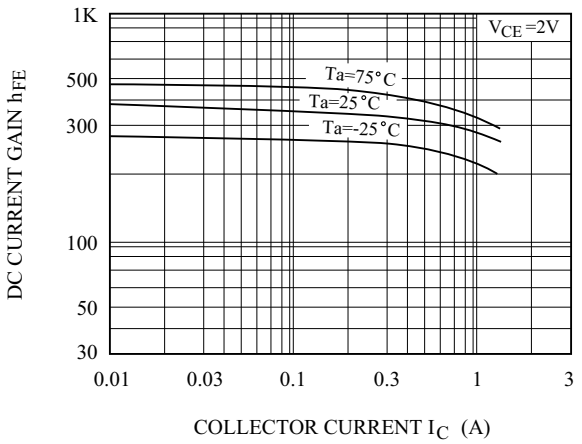


Q_1 (NPN TRANSISTOR)

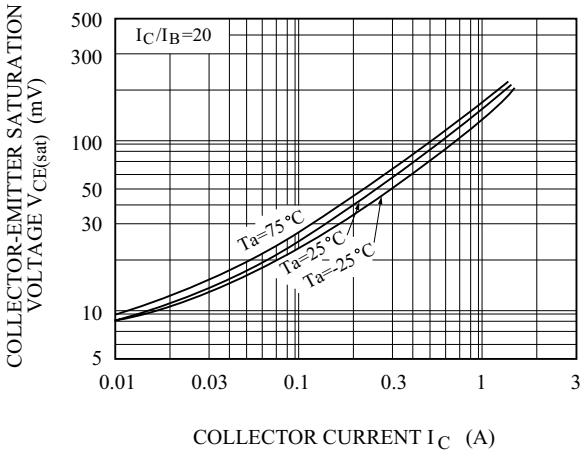
I_C - V_{CE}



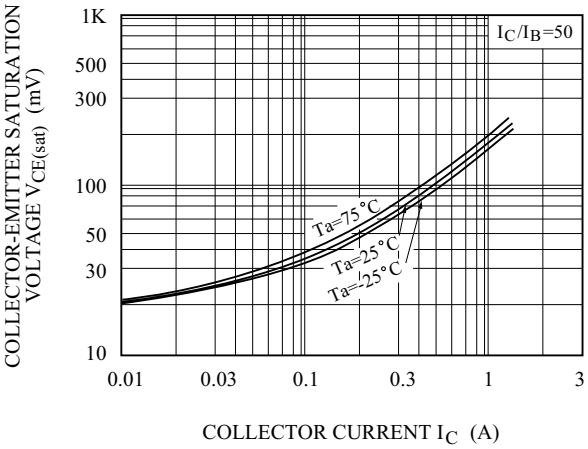
h_{FE} - I_C



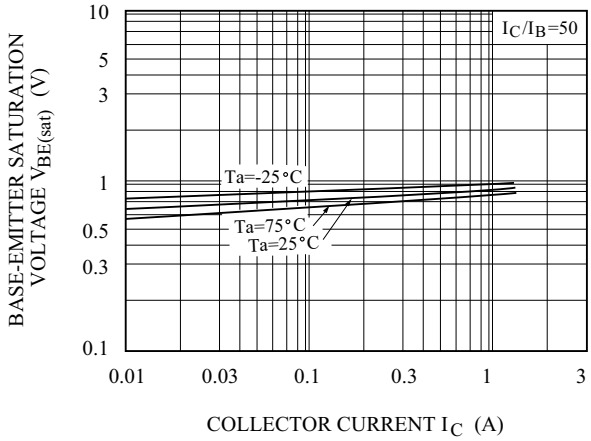
$V_{CE(sat)}$ - I_C



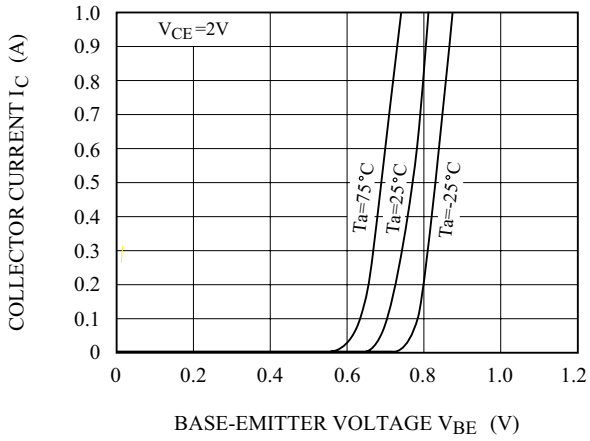
$V_{CE(sat)}$ - I_C



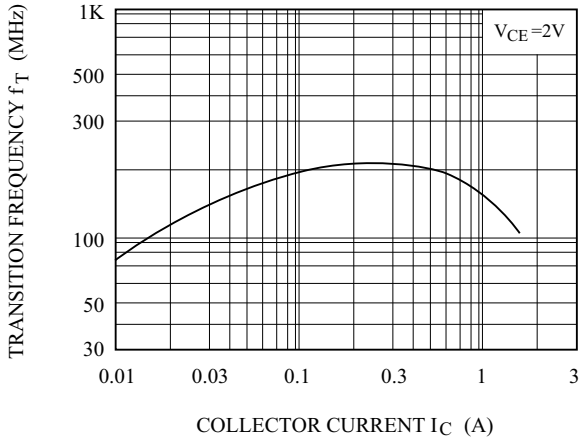
$V_{BE(sat)}$ - I_C



I_C - V_{BE}



f_T - I_C



C_{ob} - V_{CB}