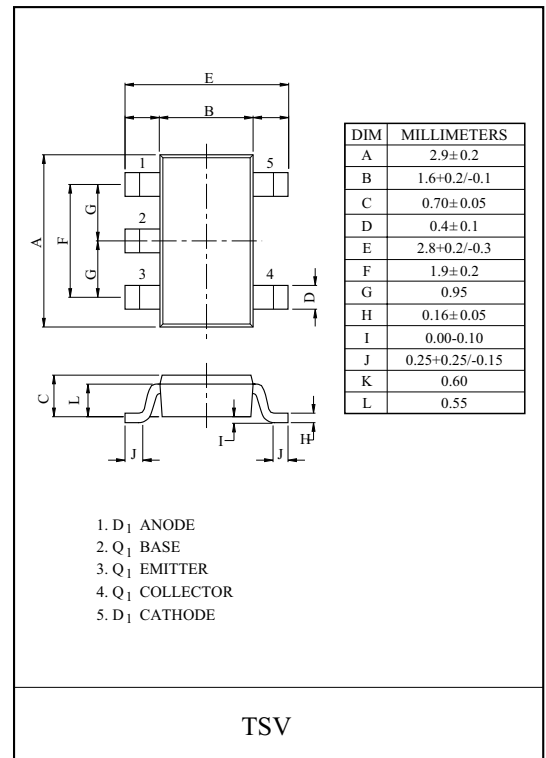
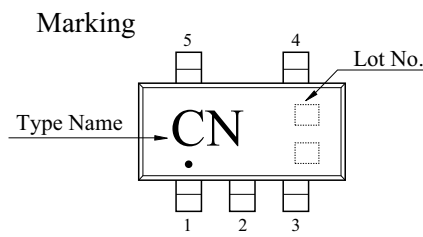
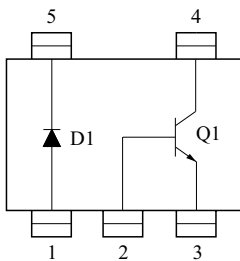


GENERAL PURPOSE APPLICATION.
ULTRA HIGH SPEED SWITCHING APPLICATION.

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.

EQUIVALENT CIRCUIT (TOP VIEW)



MAXIMUM RATINGS (Ta=25 °C) TRANSISTOR Q₁

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	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	°C
Storage Temperature Range	T _{stg}	-55~125	°C

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

DIODE D₁

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	°C
Storage Temperature	T _{stg}	-55~125	°C

KTX412T

ELECTRICAL CHARACTERISTICS (Ta=25 °C) TRANSISTOR Q₁

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		$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	20	-	-	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	20	-	-	V
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	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
Switching Time	Turn-On Time	t_{on}		-	40	-	nS
	Storage Time	t_{stg}		-	180	-	
	Fall Time	t_f		-	20	-	

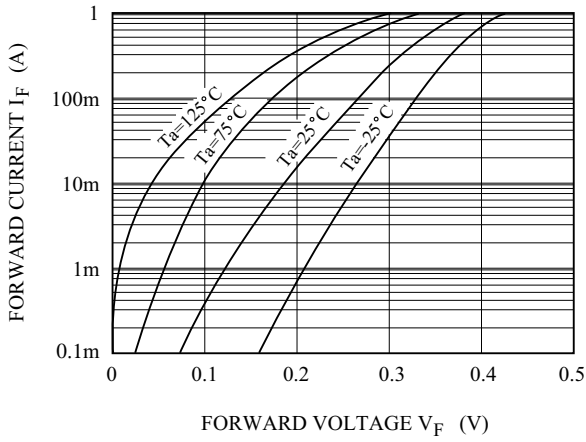
DIODE D₁

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

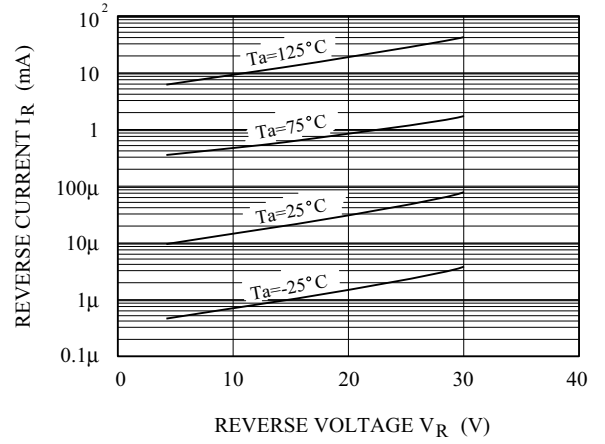
KTX412T

D₁ (DIODE)

$I_F - V_F$

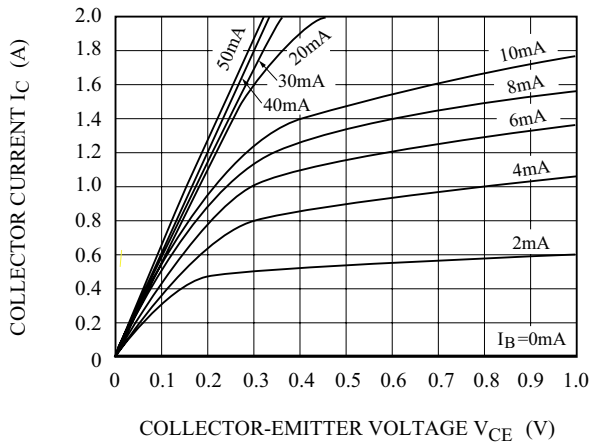


$I_R - V_R$

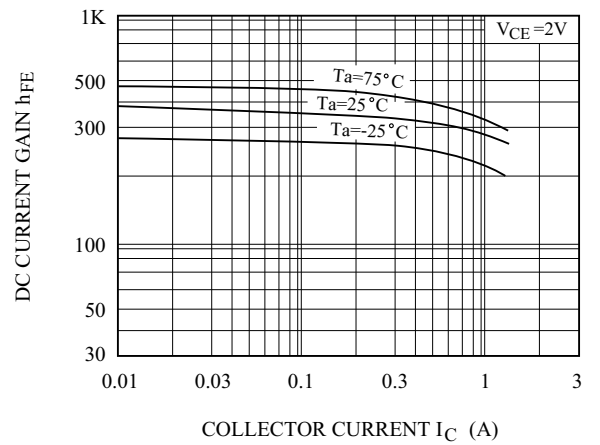


Q₁ (NPN TRANSISTOR)

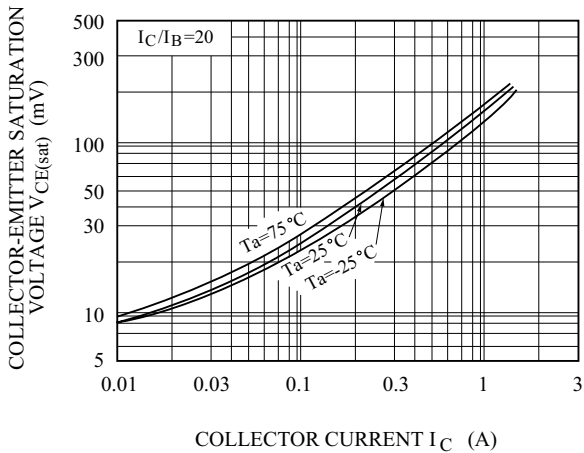
$I_C - V_{CE}$



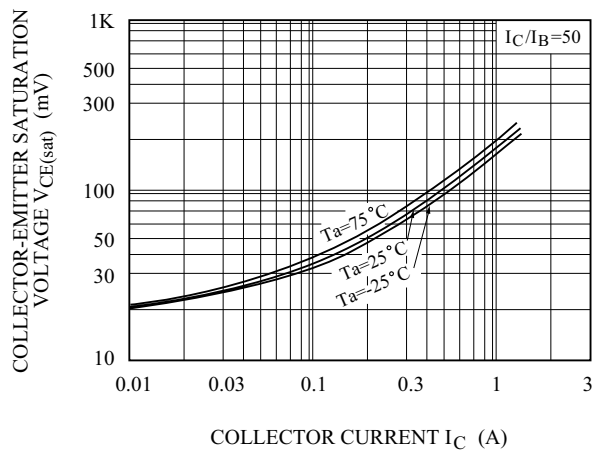
$h_{FE} - I_C$



$V_{CE(sat)} - I_C$

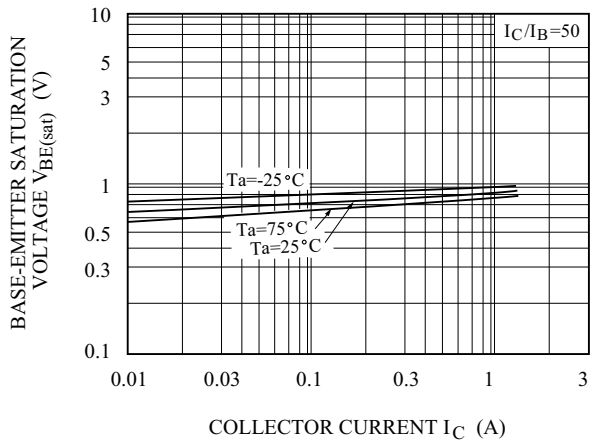


$V_{CE(sat)} - I_C$

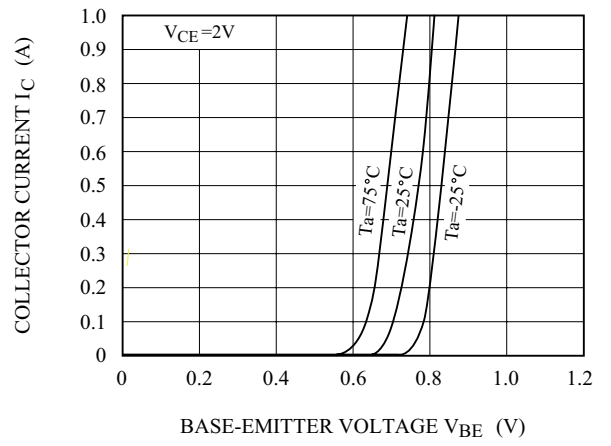


KTX412T

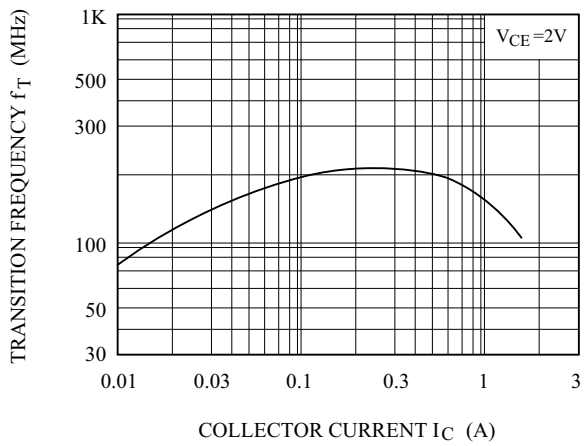
$V_{BE(sat)} - I_C$



$I_C - V_{BE}$



$f_T - I_C$



$C_{ob} - V_{CB}$

