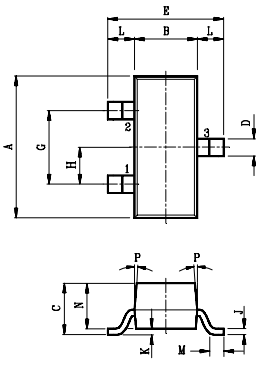
KTN2222S/AS

EPITAXIAL PLANAR NPN TRANSISTOR

GENERAL PURPOSE APPLICATION.
SWITCHING APPLICATION.

FEATURES

- Low Leakage Current
  : I_{CEX}=10nA(Max.) ; V_{CE}=60V, $V_{EB(OFF)}$=3V.
- Low Saturation Voltage
  : $V_{CE(sat)}$=0.3V(Max.) ; I_C=150mA, I_B=15mA.
- Complementary to the KTN2907S/2907AS.



DIM	MILLIMETERS
A	2.93±0.20
B	1.30+0.20/−0.15
C	1.30 MAX
D	0.45+0.15/−0.05
E	2.40+0.30/−0.20
G	1.90
H	0.95
J	0.13+0.10/−0.05
K	0.00 − 0.10
L	0.55
M	0.20 MIN
N	1.00+0.20/−0.10
P	7°

1. EMITTER
2. BASE
3. COLLECTOR

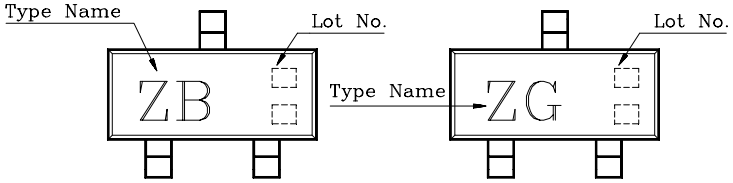
SOT−23

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING		UNIT
		KTN2222S	KTN2222AS	
Collector-Base Voltage	V_{CBO}	60	75	V
Collector-Emitter Voltage	V_{CEO}	30	40	V
Emitter-Base Voltage	V_{EBO}	5	6	V
Collector Current	I_C	600		mA
Collector Power Dissipation (Ta=25℃)	P_C *	350		mW
Junction Temperature	T_j	150		℃
Storage Temperature Range	T_{stg}	−55~150		℃

Note : P_C* : Package Mounted on 99.5% alumina 10×8×0.6mm.

Marking



MARK SPEC

TYPE	MARK
KTN2222S	Z B
KTN2222AS	Z G

ELECTRICAL CHARACTERISTICS (Ta=25℃)

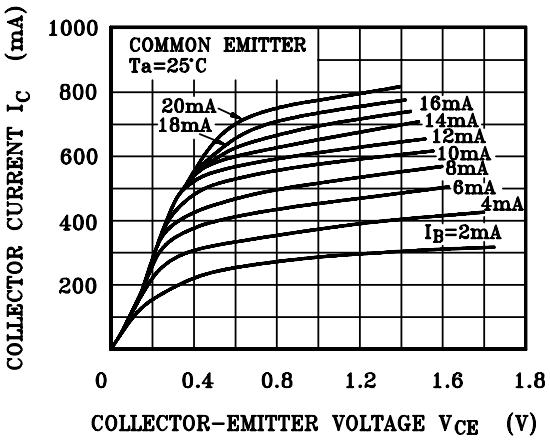
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	KTN2222AS	I_{CEX}	V_{CE}=60V, $V_{EB(OFF)}$=3V	-	-	10	nA
Collector Cut-off Current	KTN2222S	I_{CBO}	V_{CB}=50V, I_E=0	-	-	0.01	μA
	KTN2222AS		V_{CB}=60V, I_E=0	-	-	0.01	
Emitter Cut-off Current	KTN2222AS	I_{EBO}	V_{EB}=3V, I_C=0	-	-	10	nA
Collector-Base Breakdown Voltage	KTN2222S	$V_{(BR)CBO}$	I_C=10μA, I_E=0	60	-	-	V
	KTN2222AS			75	-	-	
Collector-Emitter * Breakdown Voltage	KTN2222S	$V_{(BR)CEO}$	I_E=10mA, I_B=0	30	-	-	V
	KTN2222AS			40	-	-	
Emitter-Base Breakdown Voltage	KTN2222S	$V_{(BR)EBO}$	I_E=10μA, I_C=0	5	-	-	V
	KTN2222AS			6	-	-	
DC Current Gain *	KTN2222S KTN2222AS	h_{FE}(1)	I_C=0.1mA, V_{CE}=10V	35	-	-	
		h_{FE}(2)	I_C=1mA, V_{CE}=10V	50	-	-	
		h_{FE}(3)	I_C=10mA, V_{CE}=10V	75	-	-	
		h_{FE}(4)	I_C=150mA, V_{CE}=10V	100	-	300	
	KTN2222S	h_{FE}(5)	I_C=500mA, V_{CE}=10V	30	-	-	
	KTN2222AS			40	-	-	
Collector-Emitter * Saturation Voltage	KTN2222S	$V_{CE(sat)}$1	I_C=150mA, I_B=15mA	-	-	0.4	V
	KTN2222AS			-	-	0.3	
	KTN2222S	$V_{CE(sat)}$2	I_C=500mA, I_B=50mA	-	-	1.6	
	KTN2222AS			-	-	1	
Base-Emitter * Saturation Voltage	KTN2222S	$V_{BE(sat)}$1	I_C=150mA, I_B=15mA	-	-	1.3	V
	KTN2222AS			0.6	-	1.2	
	KTN2222S	$V_{BE(sat)}$2	I_C=500mA, I_B=50mA	-	-	2.6	
	KTN2222AS			-	-	2.0	
Transition Frequency	KTN2222S	f_T	I_C=20mA, V_{CE}=20V, f=100MHz	250	-	-	MHz
	KTN2222AS			300	-	-	
Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1.0MHz	-	-	8	pF
Input Capacitance	KTN2222S	C_{ib}	V_{EB}=0.5V, I_C=0, f=1.0MHz	-	-	30	pF
	KTN2222AS			-	-	25	

Note : *Pulse Test : Pulse Width ≦300μS, Duty Cycle≦2.0%

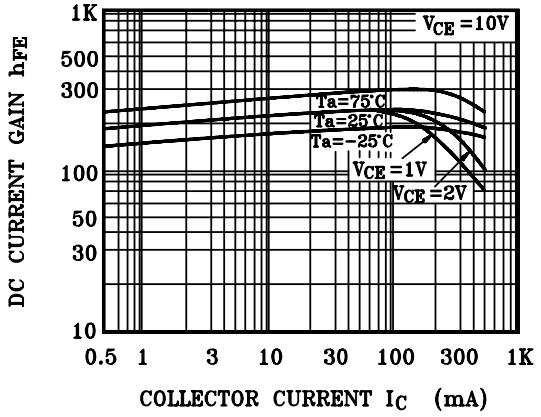
ELECTRICAL CHARACTERISTICS (Ta=25℃)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Impedance	KTN2222AS	h_{ie}	I_C=1mA, V_{CE}=10V, f=1kHz	2	-	8	kΩ
			I_C=10mA, V_{CE}=10V, f=1kHz	0.25	-	1.25	
Voltage Feedback Ratio	KTN2222AS	h_{re}	I_C=1mA, V_{CE}=10V, f=1kHz	-	-	8	$x10^{-4}$
			I_C=10mA, V_{CE}=10V, f=1kHz	-	-	4	
Small-Singal Current Gain	KTN2222AS	h_{fe}	I_C=1mA, V_{CE}=10V, f=1kHz	50	-	300	
			I_C=10mA, V_{CE}=10V, f=1kHz	75	-	375	
Collector Output Admittance	KTN2222AS	h_{oe}	I_C=1mA, V_{CE}=10V, f=1kHz	5	-	35	μ℧
			I_C=10mA, V_{CE}=10V, f=1kHz	25	-	200	
Collector-Base Time Constant	KTN2222AS	C_c·rbb′	I_E=20mA, V_{CB}=20V, f=31.8MHz	-	-	150	pS
Noise Figure	KTN2222AS	NF	I_C=100μA, V_{CE}=10V, Rg=1kΩ, f=1kHz	-	-	4	dB
Switching Time	Delay Time	t_d	V_{CC}=30V, $V_{BE(OFF)}$=0.5V I_C=150mA, I_{B1}=15mA	-	-	10	nS
	Rise Time	t_r		-	-	25	
	Storage Time	t_{stg}	V_{CC}=30V, I_C=150mA I_{B1}=-I_{B2}=15mA	-	-	225	
	Fall Time	t_f		-	-	60	

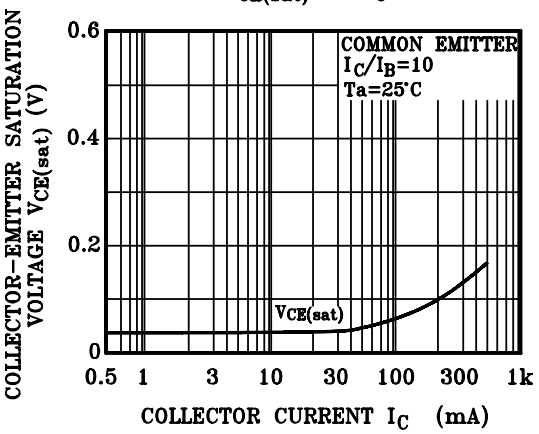
I_C – V_{CE}



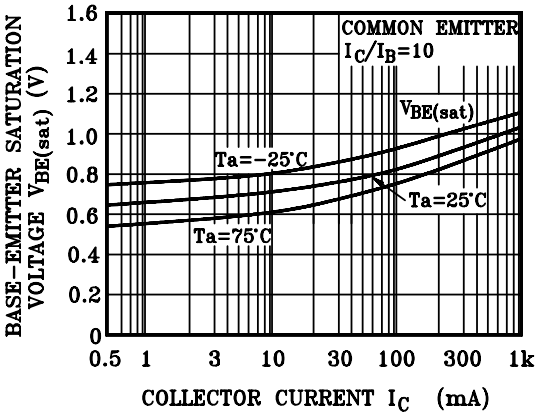
h_{FE} – I_C



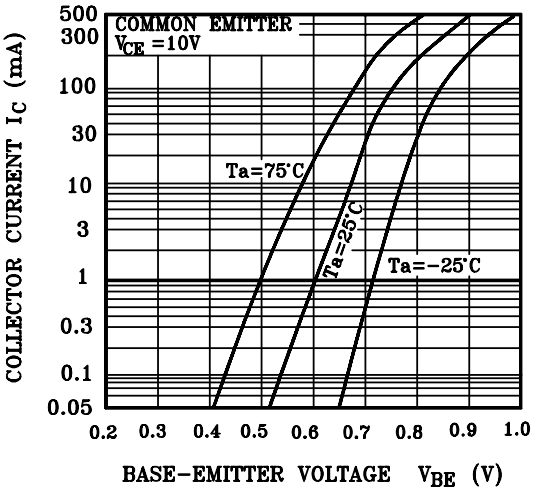
$V_{CE(sat)}$ – I_C



$V_{BE(sat)}$ – I_C



I_C – V_{BE}



f_T – I_C