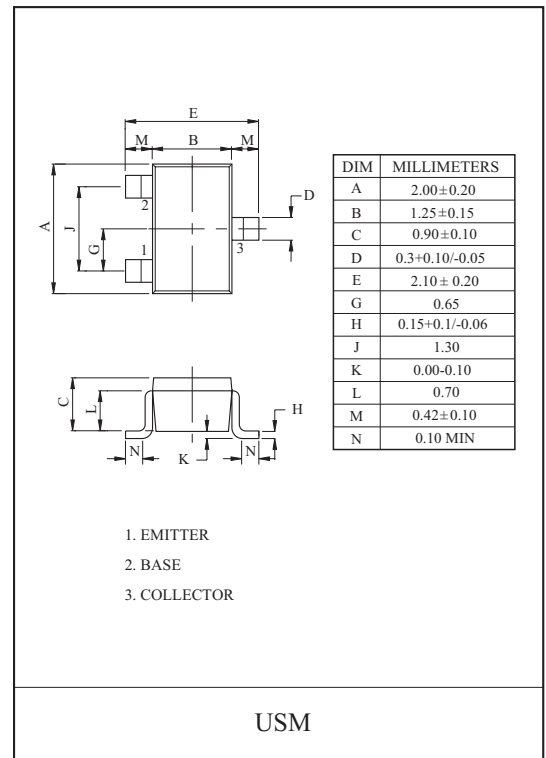


GENERAL PURPOSE APPLICATION.
SWITCHING APPLICATION.

FEATURES

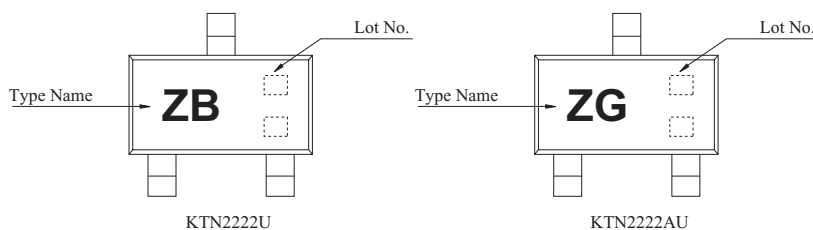
- Low Leakage Current
: $I_{CEX}=10\text{nA}(\text{Max.})$; $V_{CE}=60\text{V}$, $V_{EB(\text{OFF})}=3\text{V}$.
- Low Saturation Voltage
: $V_{CE(\text{sat})}=0.3\text{V}(\text{Max.})$; $I_C=150\text{mA}$, $I_B=15\text{mA}$.
- Complementary to the KTN2907U/2907AU.



MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC	SYMBOL	RATING		UNIT
		KTN2222U	KTN2222AU	
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 °C)	P_C	100		mW
Junction Temperature	T_j	150		
Storage Temperature Range	T_{stg}	-55 150		

Marking



MARK SPEC

TYPE	MARK
KTN2222U	Z B
KTN2222AU	Z G

KTN2222U/AU

ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	KTN2222AU	I_{CEX}	$V_{CE}=60V, V_{EB(OFF)}=3V$	-	-	10	nA	
Collector Cut-off Current	KTN2222U	I_{CBO}	$V_{CB}=50V, I_E=0$	-	-	0.01	μA	
	KTN2222AU		$V_{CB}=60V, I_E=0$	-	-	0.01		
Emitter Cut-off Current	KTN2222AU	I_{EBO}	$V_{EB}=3V, I_C=0$	-	-	10	nA	
Collector-Base Breakdown Voltage	KTN2222U	$V_{(BR)CBO}$	$I_C=10 \mu A, I_E=0$	60	-	-	V	
	KTN2222AU			75	-	-		
Collector-Emitter Breakdown Voltage	KTN2222U	$V_{(BR)CEO}$	$I_E=10mA, I_B=0$	30	-	-	V	
	KTN2222AU			40	-	-		
Emitter-Base Breakdown Voltage	KTN2222U	$V_{(BR)EBO}$	$I_E=10 \mu A, I_C=0$	5	-	-	V	
	KTN2222AU			6	-	-		
DC Current Gain	KTN2222U KTN2222AU	h_{FE}	$h_{FE}(1)$	$I_C=0.1mA, V_{CE}=10V$	35	-	-	V
			$h_{FE}(2)$	$I_C=1mA, V_{CE}=10V$	50	-	-	
			$h_{FE}(3)$	$I_C=10mA, V_{CE}=10V$	75	-	-	
			$h_{FE}(4)$	$I_C=150mA, V_{CE}=10V$	100	-	300	
	KTN2222U KTN2222AU	h_{FE}	$h_{FE}(5)$	$I_C=500mA, V_{CE}=10V$	30	-	-	
			40	-	-			
Collector-Emitter Saturation Voltage	KTN2222U	$V_{CE(sat)1}$	$I_C=150mA, I_B=15mA$	-	-	0.4	V	
	KTN2222AU			-	-	0.3		
	KTN2222U	$V_{CE(sat)2}$	$I_C=500mA, I_B=50mA$	-	-	1.6		
	KTN2222AU			-	-	1		
Base-Emitter Saturation Voltage	KTN2222U	$V_{BE(sat)1}$	$I_C=150mA, I_B=15mA$	-	-	1.3	V	
	KTN2222AU			0.6	-	1.2		
	KTN2222U	$V_{BE(sat)2}$	$I_C=500mA, I_B=50mA$	-	-	2.6		
	KTN2222AU			-	-	2.0		
Transition Frequency	KTN2222U	f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	250	-	-	MHz	
	KTN2222AU			300	-	-		
Collector Output Capacitance		C_{ob}	$V_{CB}=10V, I_E=0, f=1.0MHz$	-	-	8	pF	
Input Capacitance	KTN2222U	C_{ib}	$V_{EB}=0.5V, I_C=0, f=1.0MHz$	-	-	30	pF	
	KTN2222AU			-	-	25		

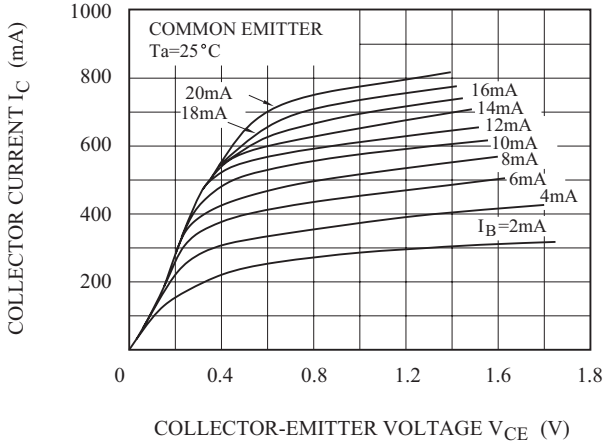
* Pulse Test : Pulse Width 300 μs , Duty Cycle 2%.

KTN2222U/AU

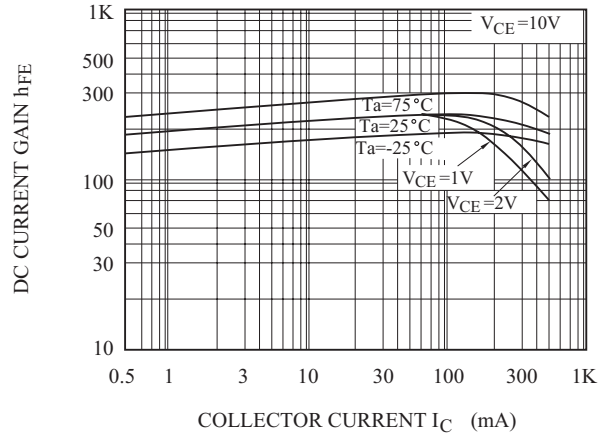
ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Impedance	KTN2222AU	h_{ie}	$I_C=1mA, V_{CE}=10V, f=1kHz$	2	-	8	k
			$I_C=10mA, V_{CE}=10V, f=1kHz$	0.25	-	1.25	
Voltage Feedback Ratio	KTN2222AU	h_{re}	$I_C=1mA, V_{CE}=10V, f=1kHz$	-	-	8	$\times 10^{-4}$
			$I_C=10mA, V_{CE}=10V, f=1kHz$	-	-	4	
Small-Signal Current Gain	KTN2222AU	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	KTN2222AU	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	KTN2222AU	$C_c \cdot r_{bb}'$	$I_E=20mA, V_{CB}=20V, f=31.8MHz$	-	-	150	pS
Noise Figure	KTN2222AU	NF	$I_C=100\mu A, V_{CE}=10V,$ $R_g=1k\Omega, f=1kHz$	-	-	4	dB
Switching Time	Delay Time	t_d	$V_{CC}=30V, V_{BE(OFF)}=0.5V$	-	-	10	nS
	Rise Time	t_r	$I_C=150mA, I_{B1}=15mA$	-	-	25	
	Storage Time	t_{stg}	$V_{CC}=30V, I_C=150mA$	-	-	225	
	Fall Time	t_f	$I_{B1}=-I_{B2}=15mA$	-	-	60	

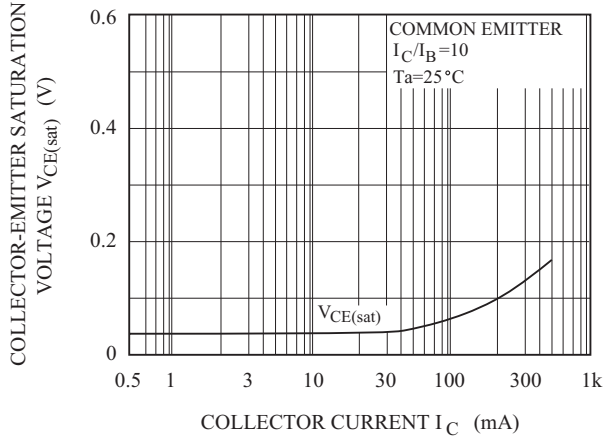
$I_C - V_{CE}$



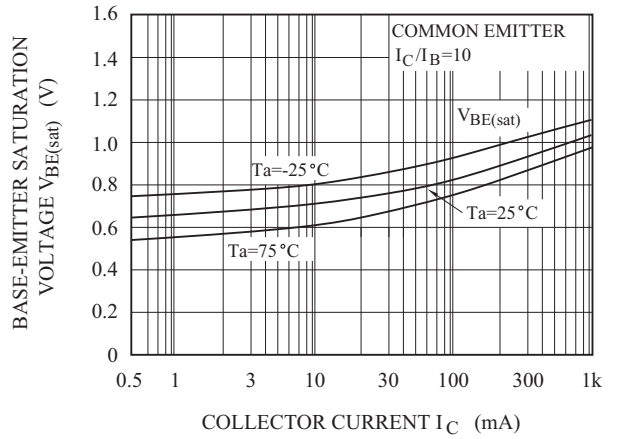
$h_{FE} - I_C$



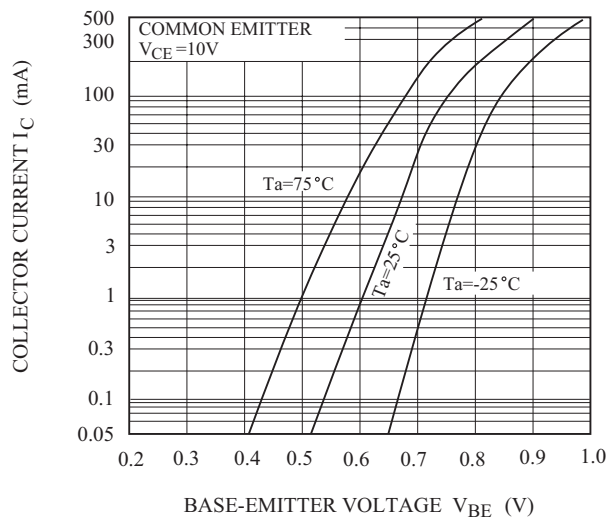
$V_{CE(sat)} - I_C$



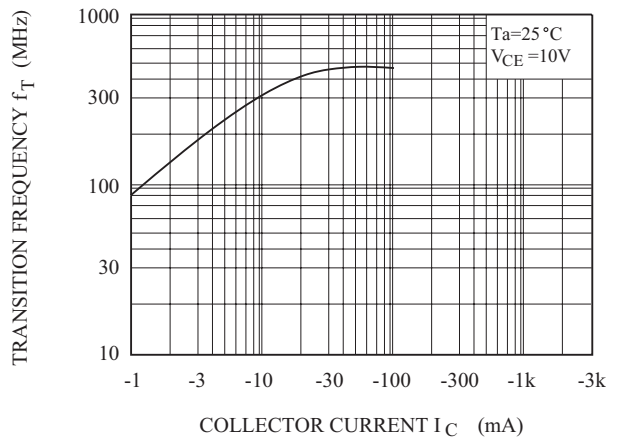
$V_{BE(sat)} - I_C$



$I_C - V_{BE}$



$f_T - I_C$



KTN2222U/AU

