

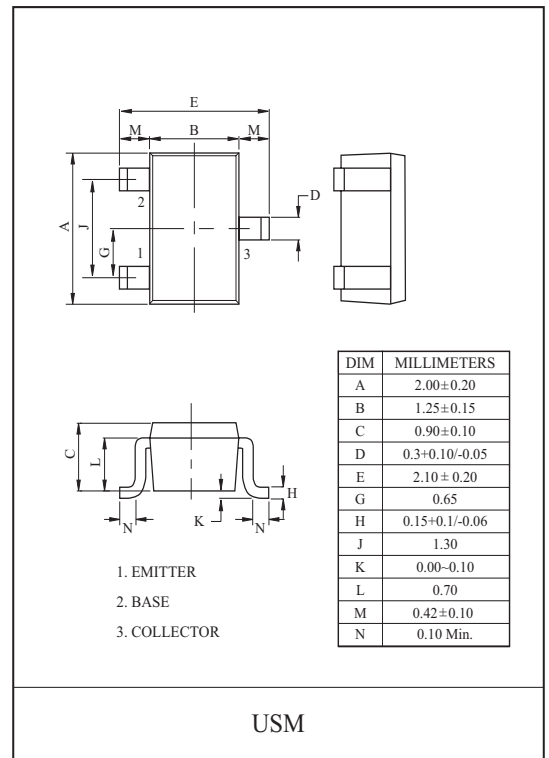
**GENERAL PURPOSE APPLICATION.
SWITCHING APPLICATION.**

FEATURES

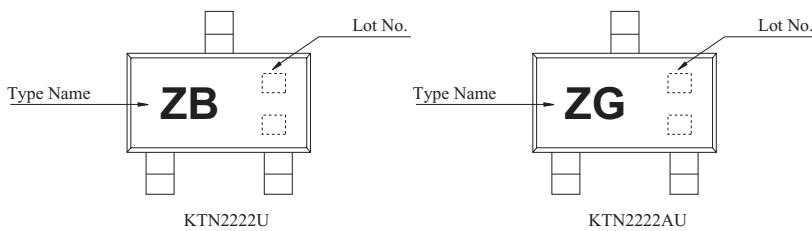
- Low Leakage Current
: $I_{CEX}=10nA(\text{Max.})$; $V_{CE}=60V$, $V_{EB(\text{OFF})}=3V$.
- Low Saturation Voltage
: $V_{CE(\text{sat})}=0.3V(\text{Max.})$; $I_C=150mA$, $I_B=15mA$.
- Complementary to the KTN2907U/2907AU.
- Suffix U : Qualified to AEC-Q101.
ex) KTN2222AU-RTK/HU

MAXIMUM RATING (Ta=25)

| 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) | 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)

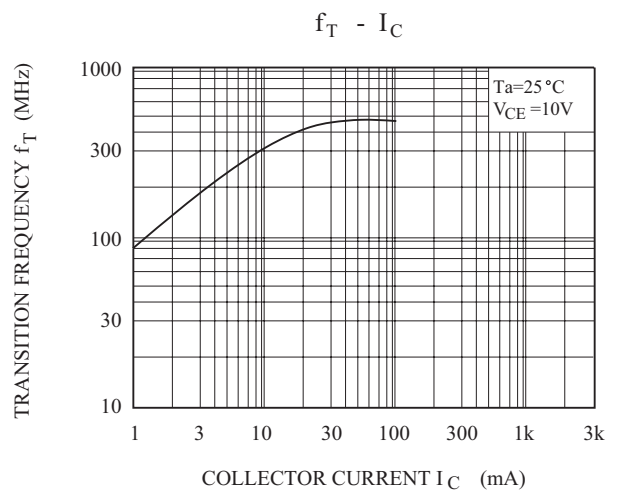
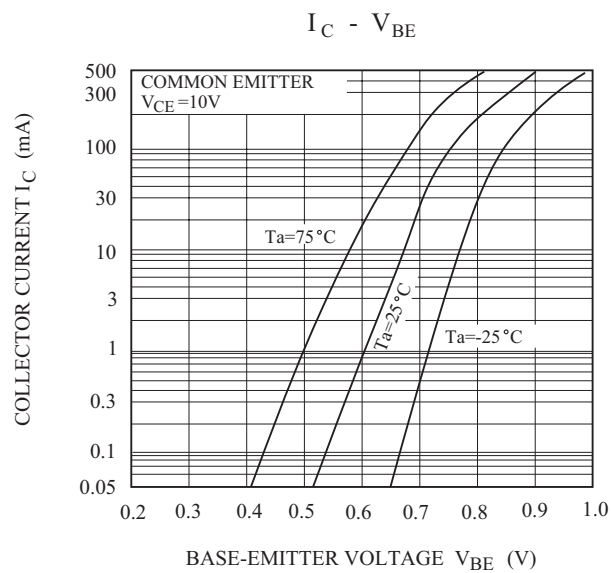
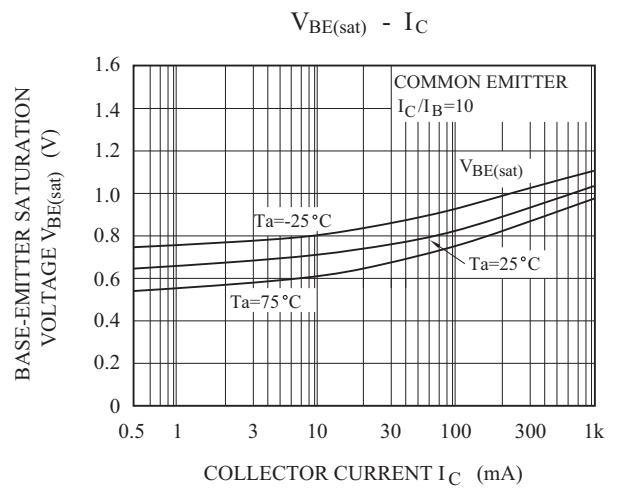
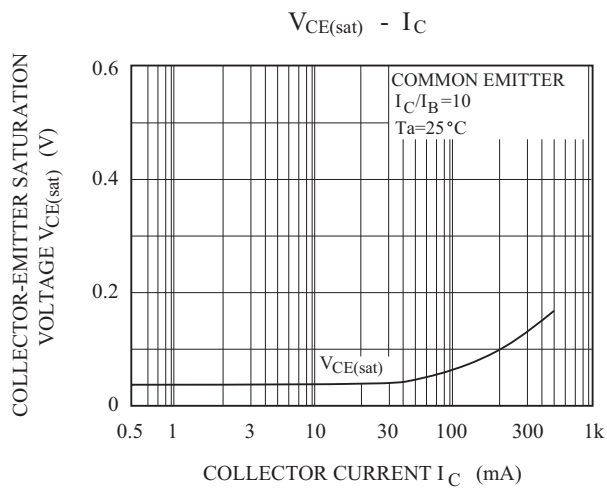
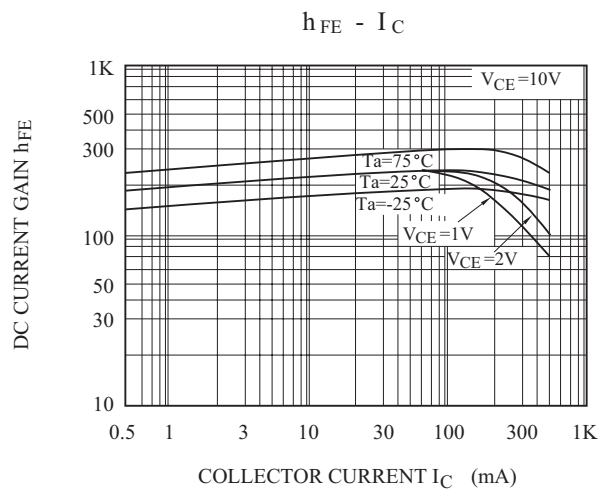
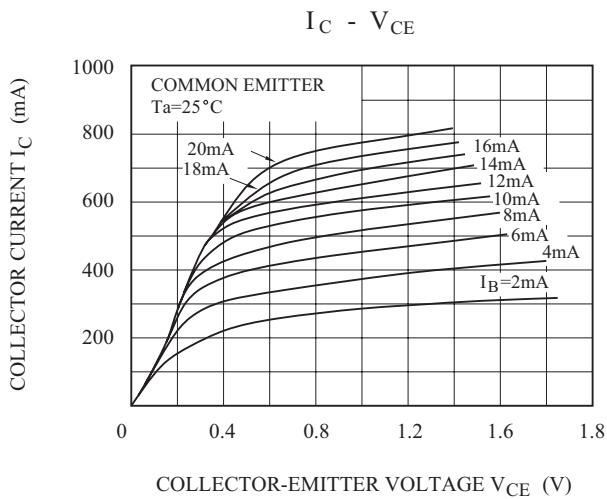
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--|-----------------------|----------------|---------------------------------------|------|------|------|---------|
| Collector Cut-off Current | KTN2222AU | I_{CEX} | $V_{CE}=60V, V_{EB(OFF)}=3V$ | - | - | 10 | nA |
| Collector 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 | $h_{FE(1)}$ | $I_C=0.1mA, V_{CE}=10V$ | 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 | |
| | KTN2222U KTN2222AU | $h_{FE(5)}$ | $I_C=500mA, V_{CE}=10V$ | 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 | |



KTN2222U/AU

