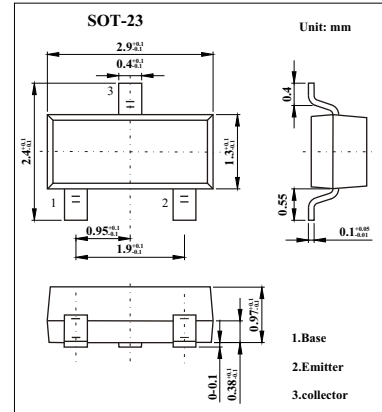


NPN Switching Transistor KMBT2222A

Features

High current (max. 600 mA)

Low voltage (max.40 V).



Absolute Maximum Ratings $T_a = 25$

| Parameter | Symbol | Rating | Unit |
|---|-----------------|-------------|------|
| Collector-base voltage | V_{CBO} | 75 | V |
| Collector-emitter voltage | V_{CEO} | 40 | V |
| Emitter-base voltage | V_{EBO} | 6 | V |
| Collector current | I_C | 600 | mA |
| Total power dissipation $T_a = 25$ | P_{tot} | 300 | mW |
| Thermal resistance from junction to ambient | $R_{\theta JA}$ | 417 | K/W |
| Operating and Storage and Temperature Range | T_j, T_{STG} | -65 to +150 | |

KMBT2222A

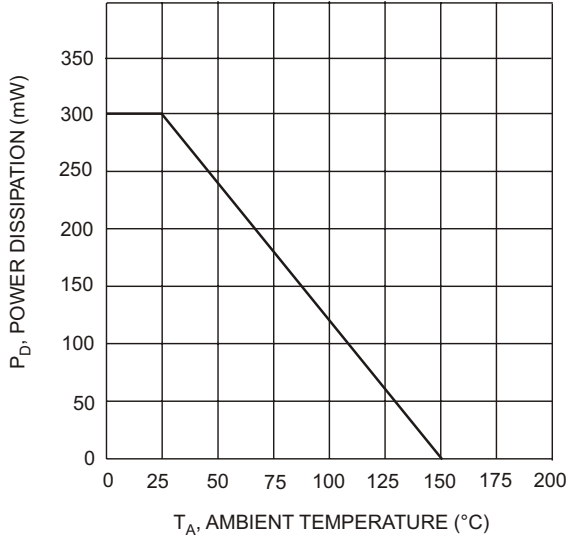
Electrical Characteristics Ta = 25

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|--------------------------------------|----------|---|-----|-----|-----|---------|
| Collector-Base Breakdown Voltage | V(BR)CBO | Ic = 10 μ A, IE = 0 | 75 | | | V |
| Collector-Emitter Breakdown Voltage | V(BR)CEO | Ic = 10 mA, IB = 0 | 40 | | | V |
| Emitter-Base Breakdown Voltage | V(BR)EBO | Ic = 10 μ A, IC = 0 | 6 | | | V |
| Collector cutoff current | ICBO | IE = 0; VCB = 60 V | | | 10 | nA |
| | | IE = 0; VCB = 60 V; Tj = 125 | | | 10 | μ A |
| Emitter cutoff current | IEBO | Ic = 0; VEB = 3 V | | | 10 | nA |
| DC current gain | hFE | Ic = 0.1 mA; VCE = 10 V | 35 | | | |
| | | Ic = 1 mA; VCE = 10 V | 50 | | | |
| | | Ic = 10 mA; VCE = 10 V | 75 | | | |
| | | Ic = 10 mA; VCE = 10 V; Ta = -55 | 35 | | | |
| | | Ic = 150 mA; VCE = 10 V | 100 | | 300 | |
| | | Ic = 150 mA; VCE = 1 V | 50 | | | |
| collector-emitter saturation voltage | VCEsat | Ic = 150 mA; IB = 15 mA | | | 300 | mV |
| | | Ic = 500 mA; IB = 50 mA | | | 1 | V |
| base-emitter saturation voltage | VBEsat | Ic = 150 mA; IB = 15 mA | 0.6 | | 1.2 | V |
| | | Ic = 500 mA; IB = 50 mA | | | 2 | V |
| Delay time | td | IB1 = 15 mA, Ic = 150 mA, VCC = 30V, VBE = -0.5 V | | | 15 | ns |
| Rise time | tr | | | | 25 | ns |
| Storage time | ts | IB1 = IB2 = 15 mA, Ic = 150 mA, VCC = 30V | | | 200 | ns |
| Fall time | tf | | | | 60 | ns |
| Output Capacitance | Cobo | VCB = 10V, f = 1.0MHz, IE = 0 | | | 8 | pF |
| Input Capacitance | Cibo | VEB = 0.5V, f = 1.0MHz, Ic = 0 | | | 25 | pF |
| Noise Figure | NF | VCE = 10 V, Ic = 100 μ A, Rs = 1 k Ω , f = 1 kHz | | | 4 | dB |
| Transition frequency | fT | Ic = 20 mA; VCE = 20 V; f = 100 MHz | 300 | | | MHz |

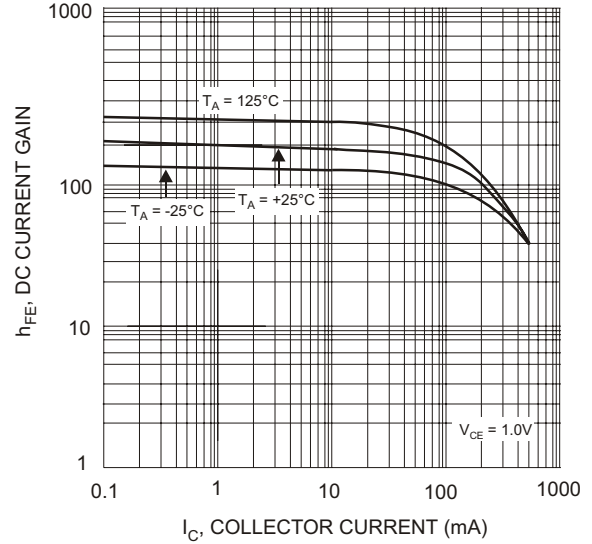
Marking

| | |
|---------|----|
| Marking | 1P |
|---------|----|

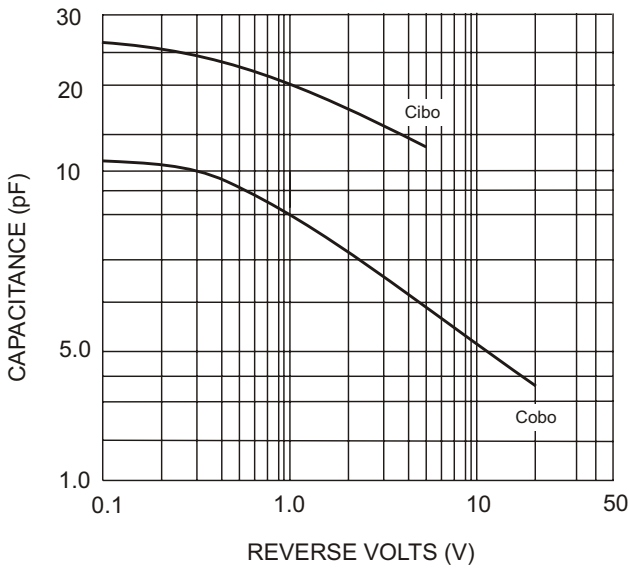
KMBT2222A



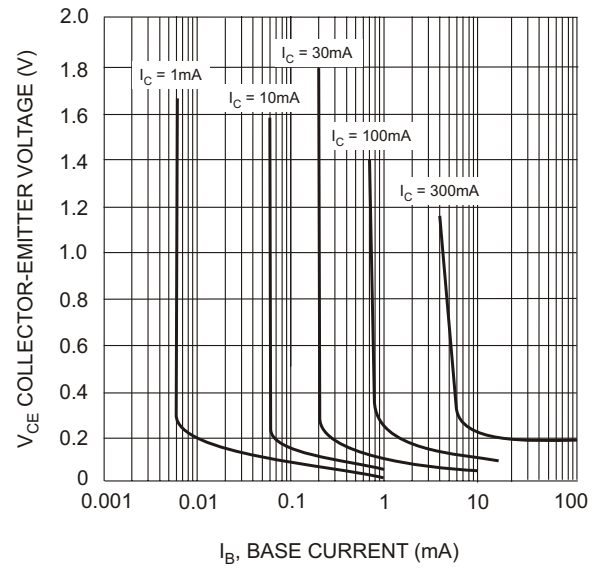
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



I_C , COLLECTOR CURRENT (mA)
Fig. 2, Typical DC Current Gain vs Collector Current



REVERSE VOLTS (V)
Fig. 3 Typical Capacitance



I_B , BASE CURRENT (mA)
Fig. 4 Typical Collector Saturation Region