Elektronische Bauelemente

# MMBT619

**2A , 50V**

**NPN Plastic Encapsulated Transistor**

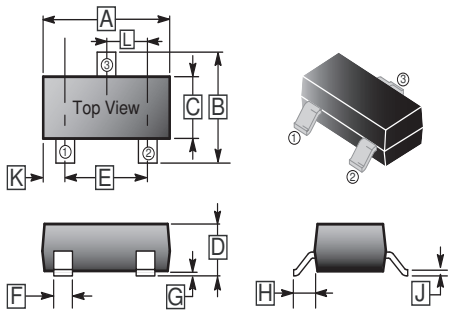
RoHS Compliant Product

A suffix of “-C” specifies halogen & lead-free

## FEATURES

- Low saturation voltage

**SOT-23**



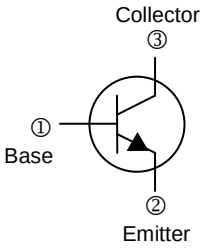

| REF. | Millimeter | | REF. | Millimeter | |
|---|---|---|---|---|---|
| | Min. | Max. | | Min. | Max. |
| A | 2.80 | 3.04 | G | 0.09 | 0.18 |
| B | 2.10 | 2.55 | H | 0.45 | 0.60 |
| C | 1.20 | 1.40 | J | 0.08 | 0.177 |
| D | 0.89 | 1.15 | K | 0.6 REF. | |
| E | 1.78 | 2.04 | L | 0.89 | 1.02 |
| F | 0.30 | 0.50 | | | |

## MARKING

**619**

## PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---|---|---|
| SOT-23 | 3K | 7 inch |




## ABSOLUTE MAXIMUM RATINGS ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Ratings | Unit |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 50 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 50 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current - Continuous | $I_C$ | 2 | A |
| Collector Power Dissipation | $P_C$ | 350 | mW |
| Thermal Resistance From Junction To Ambient | $R_{\theta JA}$ | 357 | ℃ / W |
| Maximum Power Dissipation [1] | $P_{CM}$ | 625 | mW |
| Thermal Resistance From Junction To Ambient [1] | $R_{\theta JA}$ | 200 | ℃ / W |
| Junction, Storage Temperature | $T_J$, $T_{STG}$ | 150, -55~150 | ℃ |

Note:

1. Maximum power dissipation is calculated assuming that the device is mounted on a ceramic substrate measuring 15x15x0.6mm.

## ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Collector to Base Breakdown Voltage | $V_{(BR)CBO}$ | 50 | - | - | V | $I_C$=100μA, $I_E$=0 |
| Collector to Emitter Breakdown Voltage [1] | $V_{(BR)CEO}$ | 50 | - | - | V | $I_C$=10mA, $I_B$=0 |
| Emitter to Base Breakdown Voltage | $V_{(BR)EBO}$ | 5 | - | - | V | $I_E$=100μA, $I_C$=0 |
| Collector Cut-Off Current | $I_{CBO}$ | - | - | 100 | nA | $V_{CB}$=40V, $I_E$=0 |
| Emitter Cut-Off Current | $I_{EBO}$ | - | - | 100 | nA | $V_{EB}$=4V, $I_C$=0 |
| DC Current Gain [2] | $h_{FE}$ | 200 | - | - | | $V_{CE}$=2V, $I_C$=10mA |
| | | 300 | - | - | | $V_{CE}$=2V, $I_C$=200mA |
| | | 200 | - | - | | $V_{CE}$=2V, $I_C$=1A |
| | | 100 | - | - | | $V_{CE}$=2V, $I_C$=2A |
| | | - | 40 | - | | $V_{CE}$=2V, $I_C$=6A |
| Collector to Emitter Saturation Voltage [1] | $V_{CE(sat)}$ | - | - | 20 | mV | $I_C$=100mA, $I_B$=10mA |
| | | - | - | 200 | | $I_C$=1A, $I_B$=10mA |
| | | - | - | 220 | | $I_C$=2A, $I_B$=50mA |
| Base to Emitter Saturation Voltage [1] | $V_{BE(sat)}$ | - | - | 1 | V | $I_C$=2A, $I_B$=50mA |
| Base to Emitter On Voltage [1] | $V_{BE(on)}$ | - | - | 1 | V | $I_C$=2A, $V_{CE}$=2V |
| Collector output capacitance | $C_{ob}$ | - | - | 20 | pF | $V_{CB}$=10V, f=1MHz |
| Turn-On Time | $t_{(on)}$ | - | 170 | - | ns | $V_{CC}$=10V, $I_C$=1A, $I_{B1}$= -$I_{B2}$=10mA |
| Turn-Off Time | $t_{(off)}$ | - | 750 | - | ns | |
| Transition Frequency | $f_T$ | 100 | - | - | MHz | $V_{CE}$=10V, $I_C$=50mA, f=100MHz |

Note:
1. Pulse width≦300μs, duty cycle≦2.0%