

2SC3039

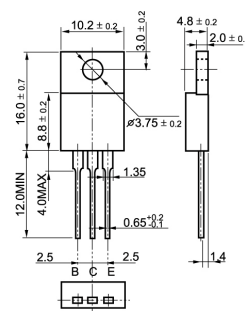
Silicon Epitaxial Planar Transistor

GENERAL DESCRIPTION

Silicon NPN high frequency, high power transistors in a plastic envelope, primarily for use in audio and general purpose



TO-220



QUICK REFERENCE DATA

| SYMBOL | PARAMETER | CONDITIONS | TYP | MAX | UNIT |
|-------------|---------------------------------------|-------------------------------------------|-----|-----|---------|
| V_{CESM} | Collector-emitter voltage peak value | $V_{BE} = 0V$ | - | 500 | V |
| V_{CEO} | Collector-emitter voltage (open base) | | - | 300 | V |
| I_C | Collector current (DC) | | - | 7 | A |
| I_{CM} | Collector current peak value | | - | | A |
| P_{tot} | Total power dissipation | $T_{mb} \leq 25^{\circ}C$ | - | 50 | W |
| V_{CESat} | Collector-emitter saturation voltage | $I_C = 3.0A; I_B = 0.3A$ | - | 2 | V |
| V_F | Diode forward voltage | $I_F = 3.0A$ | 1.5 | 2.0 | V |
| t_f | Fall time | $I_C=3A, I_{B1}=-I_{B2}=0.3A, V_{CC}=60V$ | 0.4 | 1.0 | μs |

LIMITING VALUES

| SYMBOL | PARAMETER | CONDITIONS | MIN | MAX | UNIT |
|------------|---------------------------------------|---------------------------|-----|-----|-------------|
| V_{CESM} | Collector-emitter voltage peak value | $V_{BE} = 0V$ | - | 500 | V |
| V_{CEO} | Collector-emitter voltage (open base) | | - | 300 | V |
| V_{EBO} | Emitter-base oltage (open collector) | | | 5 | V |
| I_C | Collector current (DC) | | - | 7 | A |
| I_B | Base current (DC) | | - | 2 | A |
| P_{tot} | Total power dissipation | $T_{mb} \leq 25^{\circ}C$ | - | 50 | W |
| T_{sta} | Storage temperature | | -55 | 150 | $^{\circ}C$ |
| T_i | Junction temperature | | - | 150 | $^{\circ}C$ |

ELECTRICAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | TYP | MAX | UNIT |
|---------------|---------------------------------------|-------------------------------------------|-----|-----|------|
| I_{CBO} | Collector-base cut-off current | $V_{CB}=400V$ | - | 0.2 | mA |
| I_{EBO} | Emitter-base cut-off current | $V_{EB}=5V$ | - | 0.2 | mA |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | $I_C=1mA$ | 300 | | V |
| V_{CEsat} | Collector-emitter saturation voltages | $I_C = 2.0A; I_B = 0.5A$ | - | 2 | V |
| h_{FE} | DC current gain | $I_C = 0.8A; V_{CE} = 5V$ | 15 | 100 | |
| f_T | Transition frequency at $f = 5MHz$ | $I_C = 1A; V_{CE} = 12V$ | 25 | - | MHz |
| C_c | Collector capacitance at $f = 1MHz$ | $V_{CB} = 10V$ | 120 | - | pF |
| t_{on} | On times | $I_C=3A, I_{B1}=-I_{B2}=0.3A, V_{CC}=60V$ | | 1.0 | us |
| t_s | Turn-off storage time | $I_C=3A, I_{B1}=-I_{B2}=0.3A, V_{CC}=60V$ | | 2.5 | us |
| t_f | Fall time | $I_C=3A, I_{B1}=-I_{B2}=0.3A, V_{CC}=60V$ | 0.4 | 1.0 | us |