

## Selection Guide

By  $V_{CES}$

| $V_{CES}$<br>(V) | $I_C$<br>(A) | $P_C$<br>(W) | Part Number | Package      |
|------------------|--------------|--------------|-------------|--------------|
| 330              | 20           | 35           | FGT312      | TO220F(FM20) |
| 330              | 30           | 35           | FGT313      | TO220F(FM20) |
| 400              | 20           | 35           | FGT412      | TO220F(FM20) |
| 600              | 20           | 35           | FGT612      | TO220F(FM20) |
| 600              | 25           | 60           | FGM622S     | TO3PF(FM100) |
| 600              | 30           | 60           | FGM603      | TO3PF(FM100) |
| 600              | 30           | 60           | FGM623S     | TO3PF(FM100) |
| 600              | 50           | 150          | MGD623N     | TO3P(MT100)  |
| 600              | 50           | 150          | MGD623S     | TO3P(MT100)  |

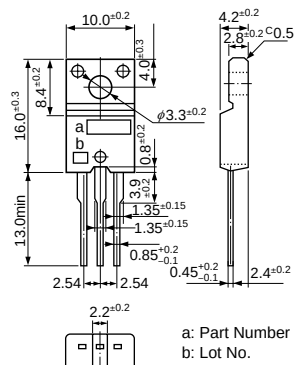
Specifications List by Part Number

| Part Number | Absolute Maximum Ratings (Ta=25°C) |                 |                |                       |                             |                  |                 |                  |                 |                     |     |                |                 |                      |     |                |                 |                  |                  |                  |            |     |  |  |
|-------------|------------------------------------|-----------------|----------------|-----------------------|-----------------------------|------------------|-----------------|------------------|-----------------|---------------------|-----|----------------|-----------------|----------------------|-----|----------------|-----------------|------------------|------------------|------------------|------------|-----|--|--|
|             | V <sub>CES</sub>                   | V <sub>GE</sub> | I <sub>C</sub> | I <sub>C(pulse)</sub> | P <sub>C</sub><br>(Ta=25°C) | I <sub>GES</sub> |                 | I <sub>CES</sub> |                 | V <sub>GE(th)</sub> |     |                |                 | V <sub>CE(sat)</sub> |     |                |                 | C <sub>ies</sub> | C <sub>oes</sub> | C <sub>res</sub> |            |     |  |  |
|             | (V)                                | (V)             | (A)            | (A)                   | (W)                         | Conditions       |                 | Conditions       |                 | Conditions          |     |                |                 | Conditions           |     |                |                 | (pF)             | (pF)             | (pF)             | Conditions |     |  |  |
|             |                                    |                 |                |                       |                             | (nA)             | V <sub>GE</sub> | (μA)             | V <sub>CE</sub> | (V)                 |     | I <sub>C</sub> | V <sub>CE</sub> | (V)                  |     | I <sub>C</sub> | V <sub>GE</sub> |                  |                  |                  |            |     |  |  |
|             |                                    |                 |                |                       |                             | max              | (V)             | max              | (V)             | min                 | max | (mA)           | (V)             | typ                  | max | (A)            | (V)             | typ              | typ              | typ              | (V)        | (V) |  |  |
| FGM603      | 600                                | ±20             | 30             | 90                    | 60                          | ±100             | ±20             | 100              | 600             | 4                   | 7   | 1              | 10              | 1.6                  | 2.0 | 30             | 15              | 4600             | 110              | 80               | 20         | 0   |  |  |
| FGM622S     | 600                                | ±30             | 25             | 75                    | 60                          | ±500             | ±30             | 100              | 600             | 4                   | 7   | 1              | 10              | 1.7                  | 1.9 | 25             | 15              | 1300             | 80               | 40               | 20         | 0   |  |  |
| FGM623S     | 600                                | ±30             | 30             | 100                   | 60                          | ±500             | ±30             | 100              | 600             | 3                   | 6   | 1              | 10              | 1.5                  | 1.7 | 30             | 15              | 2500             | 150              | 80               | 20         | 0   |  |  |
| FGT312      | 330                                | ±30             | 20             | 120                   | 35                          | ±100             | ±30             | 100              | 330             | 3                   | 6   | 1              | 10              | 1.3                  | 1.7 | 20             | 15              | 1200             | 130              | 65               | 20         | 0   |  |  |
| FGT313      | 330                                | ±30             | 30             | 200                   | 35                          | ±100             | ±30             | 100              | 330             | 3                   | 6   | 1              | 10              | 1.3                  | 1.7 | 30             | 15              | 2400             | 110              | 60               | 30         | 0   |  |  |
| FGT412      | 400                                | ±30             | 20             | 120                   | 35                          | ±100             | ±30             | 100              | 400             | 3                   | 6   | 1              | 10              | 1.4                  | 1.8 | 20             | 15              | 1200             | 120              | 65               | 20         | 0   |  |  |
| FGT612      | 600                                | ±30             | 20             | 120                   | 35                          | ±100             | ±30             | 100              | 600             | 3                   | 6   | 1              | 10              | 1.6                  | 2.0 | 20             | 15              | 1200             | 80               | 40               | 20         | 0   |  |  |
| MGD623N     | 600                                | ±30             | 50             | 100                   | 150                         | ±100             | ±30             | 100              | 600             | 3                   | 6   | 1              | 10              | 1.7                  | 2.3 | 50             | 15              | 2500             | 150              | 80               | 20         | 0   |  |  |
| MGD623S     | 600                                | ±30             | 50             | 100                   | 150                         | ±100             | ±30             | 100              | 600             | 3                   | 6   | 1              | 10              | 1.8                  | 2.4 | 50             | 15              | 2500             | 150              | 80               | 20         | 0   |  |  |

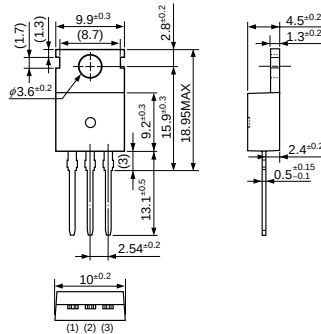
| Electrical Characteristics (Ta=25°C) |        |      |         |      |            |     |        |     |     |     |            |     |     |     |     |            |      |            |        | Package      | Mass |             |
|--------------------------------------|--------|------|---------|------|------------|-----|--------|-----|-----|-----|------------|-----|-----|-----|-----|------------|------|------------|--------|--------------|------|-------------|
|                                      | td(on) | tr   | td(off) | tf   | Conditions |     |        | Qg  | Qge | Qgc | Conditions |     |     | VF  |     | Conditions | trr  | Conditions |        |              |      |             |
|                                      | (ns)   | (ns) | (ns)    | (ns) |            |     |        | Ic  | VCE |     |            |     |     |     |     |            | (nC) |            |        |              | (nC) |             |
|                                      | typ    | typ  | typ     | typ  | (A)        | (V) |        | typ | typ | typ | (A)        | (V) | (V) | typ | max | (A)        | typ  | (A)        | (A/μs) |              |      |             |
|                                      | 130    | 70   | 340     | 200  | 30         | 300 | L Load | 120 | 30  | 30  | 30         | 300 | 15  |     |     |            |      |            |        | TO3PF(FM100) | 6.5  |             |
|                                      | 50     | 60   | 200     | 120  | 25         | 300 | L Load | 40  | 10  | 10  | 25         | 300 | 15  |     |     |            |      |            |        | TO3PF(FM100) | 6.5  |             |
|                                      | 100    | 80   | 300     | 120  | 30         | 300 | L Load | 65  | 20  | 20  | 30         | 300 | 15  |     |     |            |      |            |        | TO3PF(FM100) | 6.5  |             |
|                                      | 15     | 30   | 55      | 210  | 20         | 150 | R Load | 35  | 8   | 10  | 20         | 150 | 15  |     |     |            |      |            |        | TO220F(FM20) | 2.0  |             |
|                                      | 20     | 90   | 90      | 180  | 60         | 250 | R Load | 65  | 10  | 20  | 60         | 250 | 15  |     |     |            |      |            |        | TO220F(FM20) | 2.0  |             |
|                                      | 15     | 35   | 55      | 220  | 20         | 200 | R Load | 35  | 8   | 10  | 20         | 200 | 15  |     |     |            |      |            |        | TO220F(FM20) | 2.0  |             |
|                                      | 25     | 60   | 70      | 190  | 20         | 300 | R Load | 35  | 6   | 9   | 20         | 300 | 15  |     |     |            |      |            |        | TO220F(FM20) | 2.0  |             |
|                                      | 75     | 70   | 250     | 200  | 50         | 300 | L Load | 65  | 15  | 20  | 50         | 300 | 15  | 1.2 | 1.6 | 30         | 0.3  | 30         | 100    | TO3P(MT100)  | 6.0  | Built-in Di |
|                                      | 75     | 70   | 250     | 120  | 50         | 300 | L Load | 65  | 15  | 20  | 50         | 300 | 15  | 1.2 | 1.6 | 30         | 0.3  | 30         | 100    | TO3P(MT100)  | 6.0  | Built-in Di |

# Package Type (Dimensions)

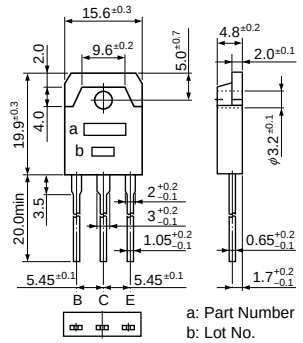
• TO-220F (FM20)



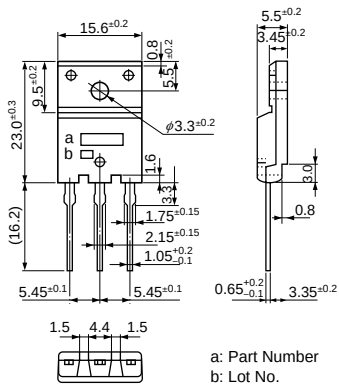
• TO-220 (MT-25)



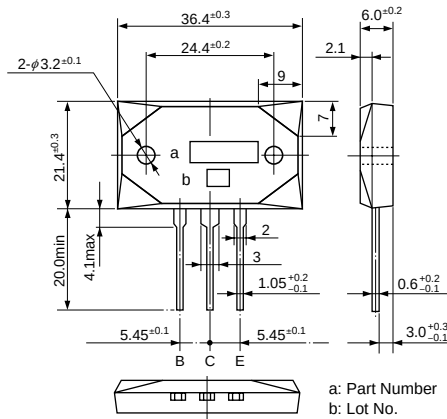
• TO-3P (MT-100)



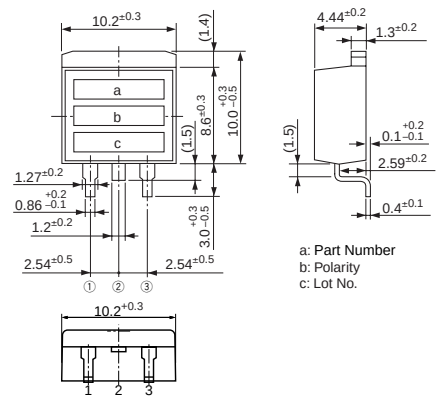
• TO-3PF (FM100)



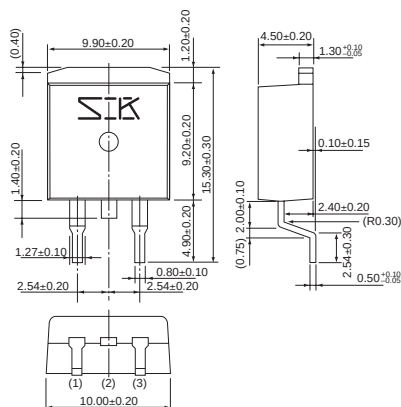
• MT-200



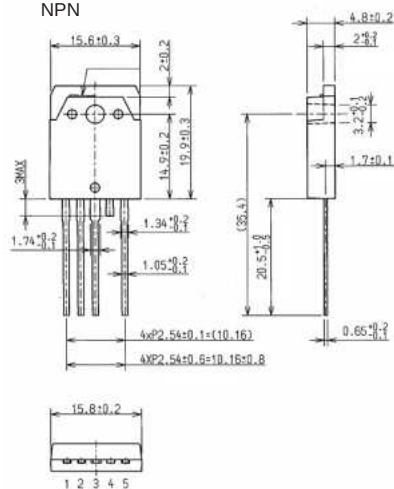
• TO-220S



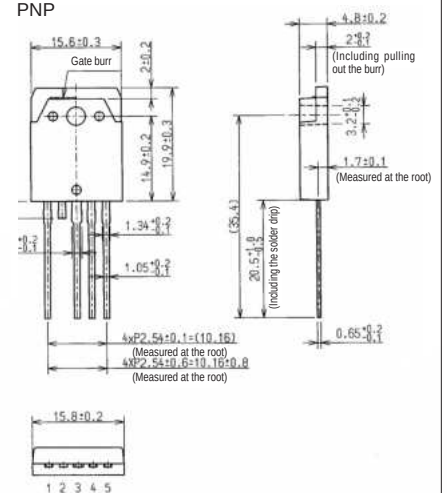
• TO-263



• TO3P-5Pin  
NPN



PNP



(Unit : mm)