

# **SF8G41A, SF8J41A**

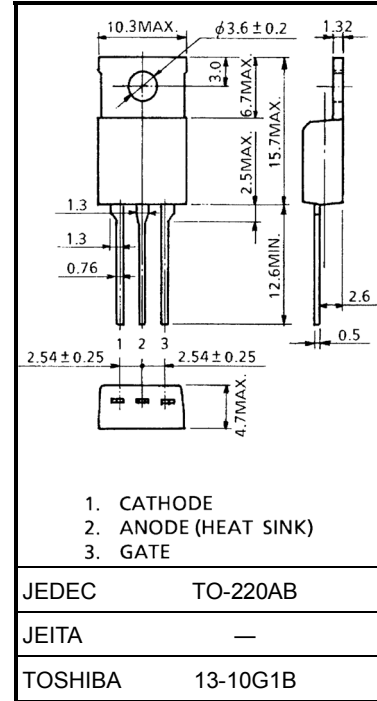
## MEDIUM POWER CONTROL APPLICATIONS

Unit: mm

- Repetitive Peak Off-State Voltage:  $V_{DRM} = 400V, 600V$   
Repetitive Peak Reverse Voltage:  $V_{RRM} = 400V, 600V$
- Average On-State Current:  $I_T (AV) = 8A$
- Gate Trigger Current:  $I_{GT} = 15mA (MAX.)$

## MAXIMUM RATINGS

| CHARACTERISTIC                                                                         | SYMBOL      | RATING     | UNIT        |
|----------------------------------------------------------------------------------------|-------------|------------|-------------|
| Repetitive Peak Off-State Voltage and Repetitive Peak Reverse Voltage                  | SF8G41A     | $V_{DRM}$  | 400         |
|                                                                                        | SF8J41A     | $V_{RRM}$  | 600         |
| Non-Repetitive Peak Reverse Voltage (Non-Repetitive <5ms, $T_j = 0 \sim 125^\circ C$ ) | SF8G41A     | $V_{RSM}$  | 500         |
|                                                                                        | SF8J41A     |            | 720         |
| Average On-State Current (Half Sine Waveform $T_c = 83^\circ C$ )                      | $I_T (AV)$  | 8          | A           |
| R.M.S On-State Current                                                                 | $I_T (RMS)$ | 12.6       | A           |
| Peak One Cycle Surge On-State Current (Non-Repetitive)                                 | $I_{TSM}$   | 120 (50Hz) | A           |
|                                                                                        |             | 132 (60Hz) |             |
| $I^2 t$ Limit Value                                                                    | $I^2 t$     | 72         | $A^2 s$     |
| Critical Rate of Rise of On-State Current                                              | $di / dt$   | 100        | A / $\mu s$ |
| Peak Gate Power Dissipation                                                            | $P_{GM}$    | 5          | W           |
| Average Gate Power Dissipation                                                         | $P_G (AV)$  | 0.5        | W           |
| Peak Forward Gate Voltage                                                              | $V_{FGM}$   | 10         | V           |
| Peak Reverse Gate Voltage                                                              | $V_{RGM}$   | -5         | V           |
| Peak Forward Gate Current                                                              | $I_{GM}$    | 2          | A           |
| Junction Temperature                                                                   | $T_j$       | -40~125    | $^\circ C$  |
| Storage Temperature Range                                                              | $T_{stg}$   | -40~125    | $^\circ C$  |

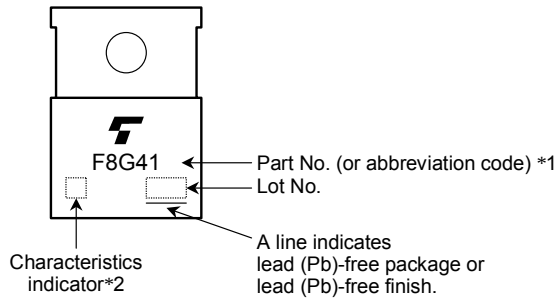


Weight: 2.0 g (typ.)

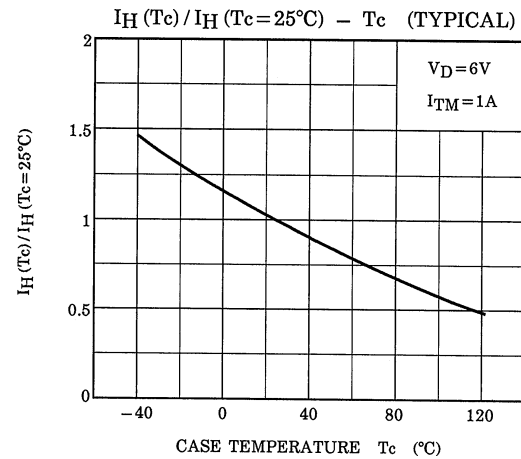
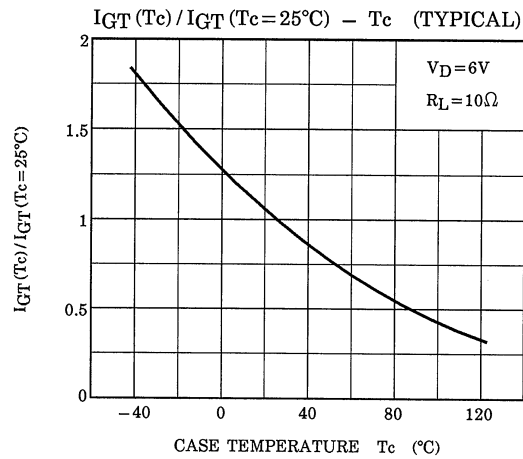
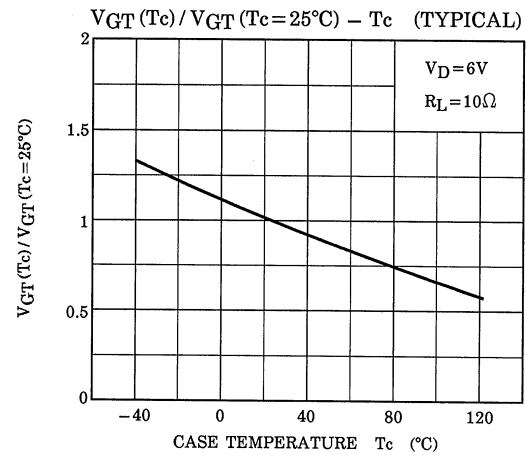
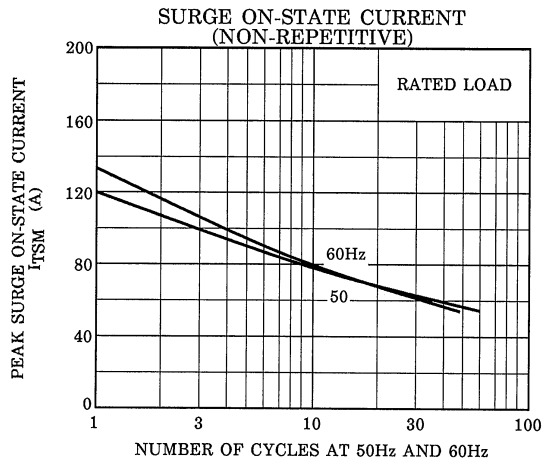
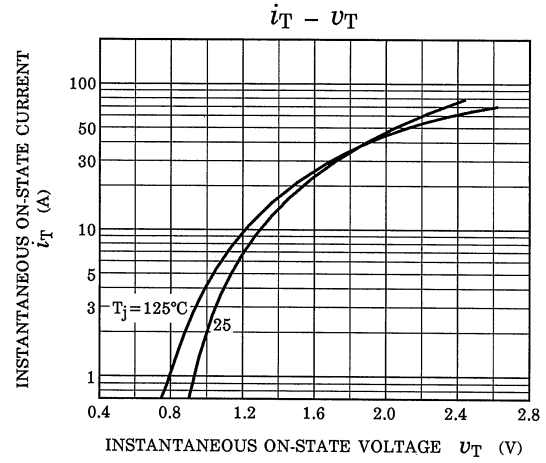
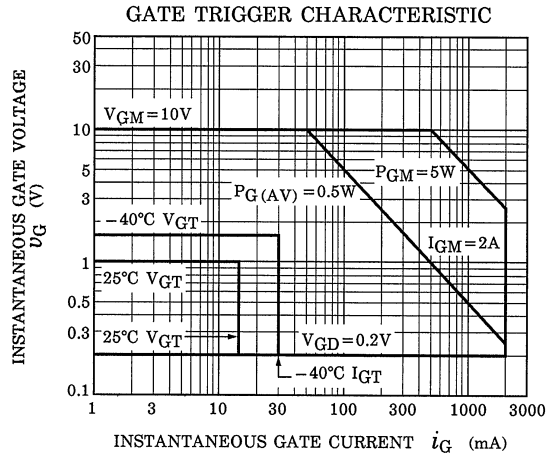
## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

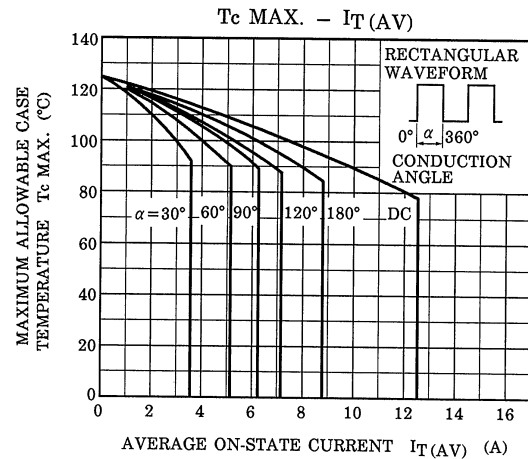
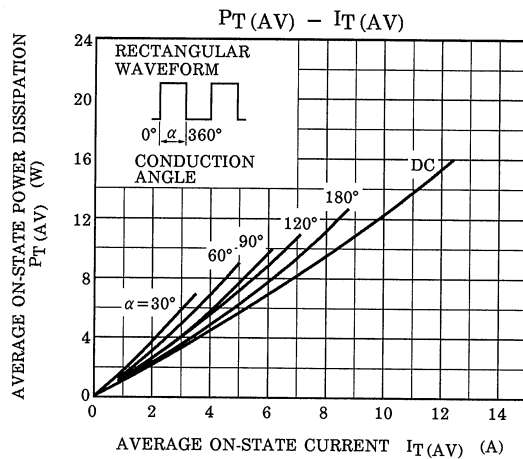
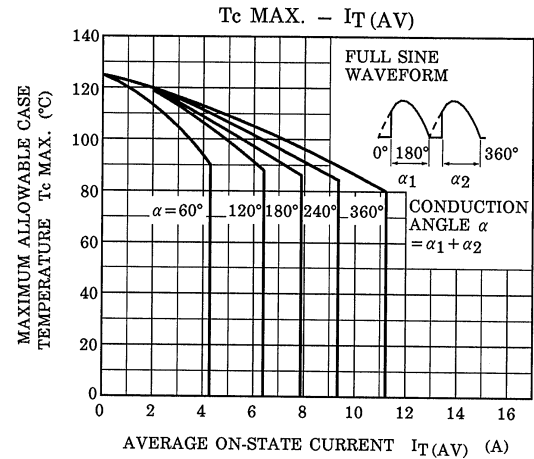
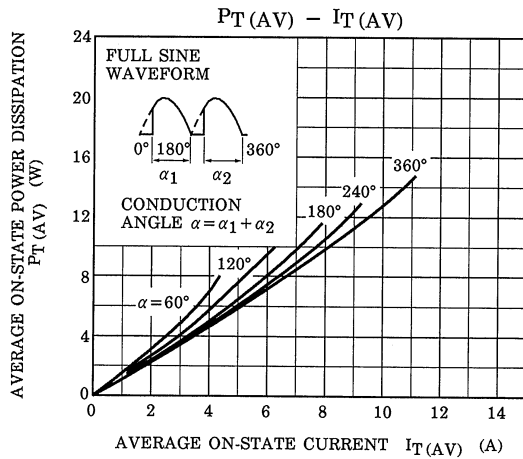
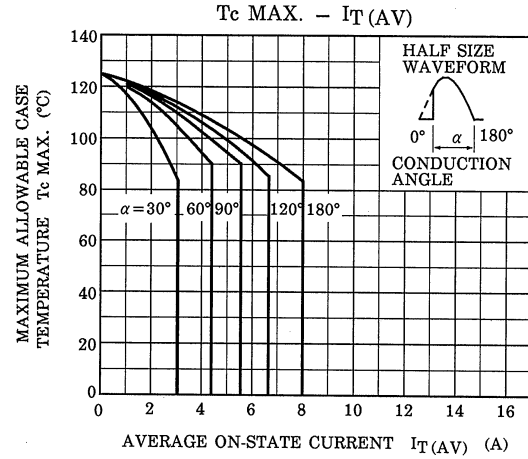
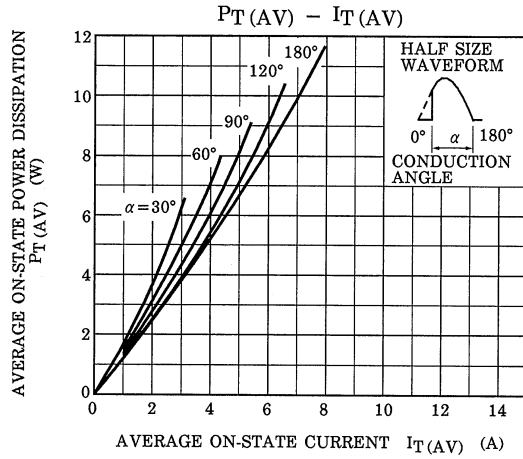
| CHARACTERISTIC                                                        | SYMBOL                 | TEST CONDITION                                                                          | MIN | TYP. | MAX | UNIT                        |
|-----------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------|-----|------|-----|-----------------------------|
| Repetitive Peak Off-State Current and Repetitive Peak Reverse Current | $I_{DRM}$<br>$I_{RRM}$ | $V_{DRM} = V_{RRM} = \text{Rated}$                                                      | —   | —    | 10  | $\mu\text{A}$               |
| Peak On-State Voltage                                                 | $V_{TM}$               | $I_{TM} = 25\text{A}$                                                                   | —   | —    | 1.6 | V                           |
| Gate Trigger Voltage                                                  | $V_{GT}$               | $V_D = 6\text{V}$ , $R_L = 10\Omega$                                                    | —   | —    | 1.0 | V                           |
| Gate Trigger Current                                                  | $I_{GT}$               |                                                                                         | —   | —    | 15  | mA                          |
| Gate Non-Trigger Voltage                                              | $V_{GD}$               | $V_D = \text{Rated} \times 2 / 3$ , $T_c = 125^\circ\text{C}$                           | 0.2 | —    | —   | V                           |
| Critical Rate of Rise of Off-State Voltage                            | $dv / dt$              | $V_{DRM} = \text{Rated} \times 2 / 3$ , $T_c = 125^\circ\text{C}$<br>Exponential Rise   | 100 | —    | —   | V / $\mu\text{s}$           |
| Holding Current                                                       | $I_H$                  | $V_D = 6\text{V}$ , $I_{TM} = 1\text{A}$                                                | —   | —    | 40  | mA                          |
| Latching Current                                                      | $I_L$                  | $V_D = 6\text{V}$ , $f = 50\text{Hz}$ , $t_{gw} = 50\mu\text{s}$<br>$I_G = 30\text{mA}$ | —   | —    | 60  | mA                          |
| Thermal Resistance                                                    | $R_{th(j-c)}$          | Junction to Case                                                                        | —   | —    | 3   | $^\circ\text{C} / \text{W}$ |

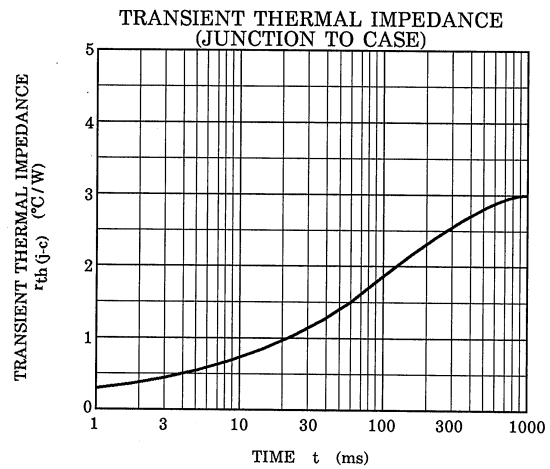
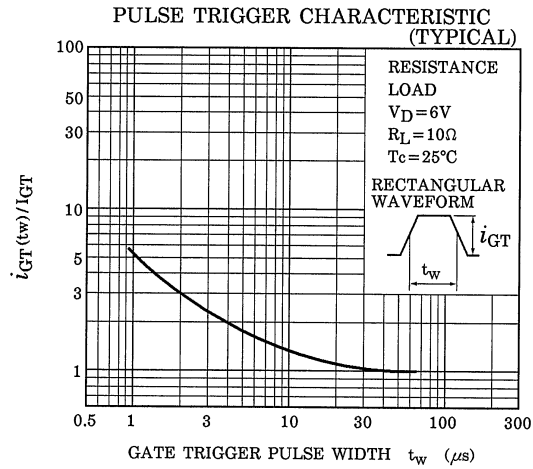
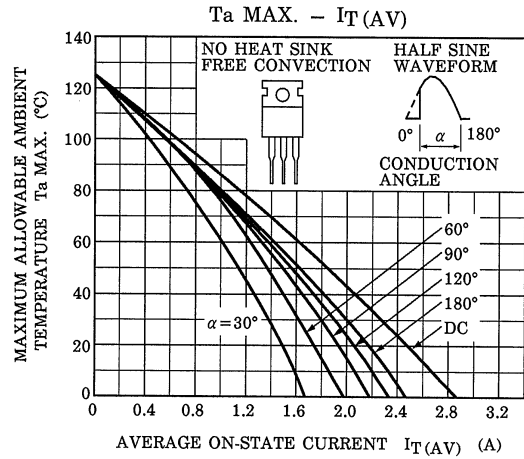
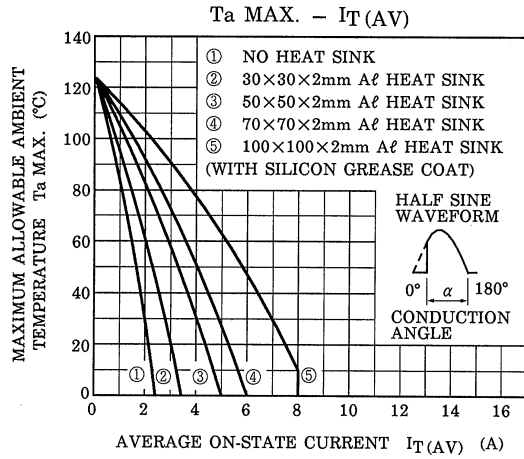
## MARKING



|    | Part No.<br>(or abbreviation code) | Part No.         |
|----|------------------------------------|------------------|
| *1 | F8G41                              | SF8G41A          |
|    | F8J41                              | SF8J41A          |
| *2 | A                                  | SF8G41A, SF8J41A |







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