

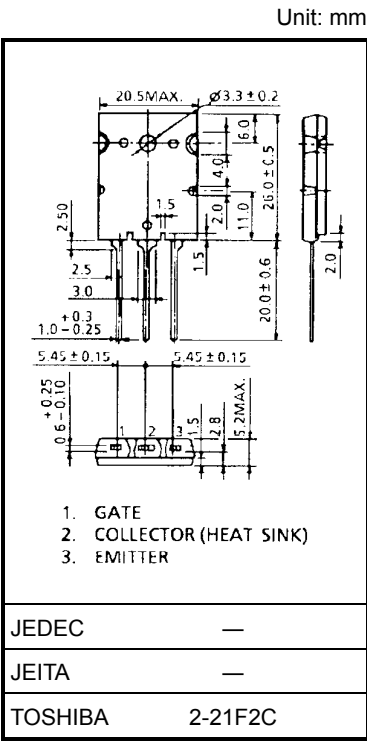
GT60J321

The 4th Generation  
Soft Switching Applications

- Enhancement mode
- High speed:  $t_f = 0.30 \mu s$  (typ.) ( $I_C = 60 A$ )
- Low saturation voltage:  $V_{CE(sat)} = 1.55 V$  (typ.) ( $I_C = 60 A$ )

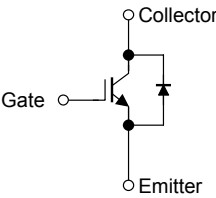
Maximum Ratings (Ta = 25°C)

| Characteristics                         |      | Symbol     | Rating   | Unit |
|-----------------------------------------|------|------------|----------|------|
| Collector-emitter voltage               |      | $V_{CES}$  | 600      | V    |
| Gate-emitter voltage                    |      | $V_{GES}$  | $\pm 25$ | V    |
| Collector current                       | DC   | $I_C$      | 60       | A    |
|                                         | 1 ms | $I_{CP}$   | 120      |      |
| Emitter-collector forward current       | DC   | $I_{ECF}$  | 60       | A    |
|                                         | 1 ms | $I_{ECPF}$ | 120      |      |
| Collector power dissipation (Tc = 25°C) |      | $P_C$      | 200      | W    |
| Junction temperature                    |      | $T_j$      | 150      | °C   |
| Storage temperature range               |      | $T_{stg}$  | -55~150  | °C   |
| Screw torque                            |      | —          | 0.8      | N·m  |

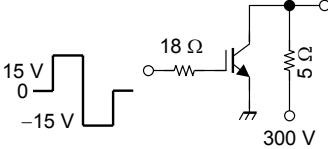


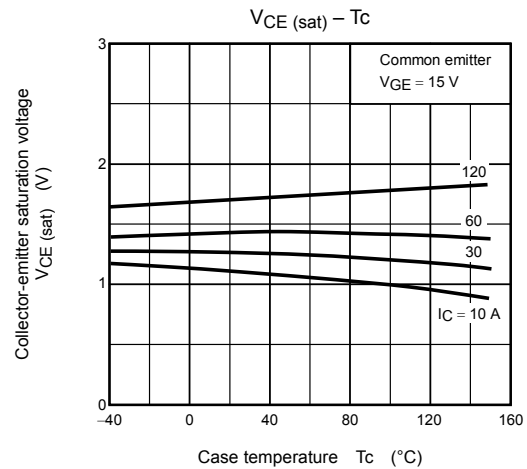
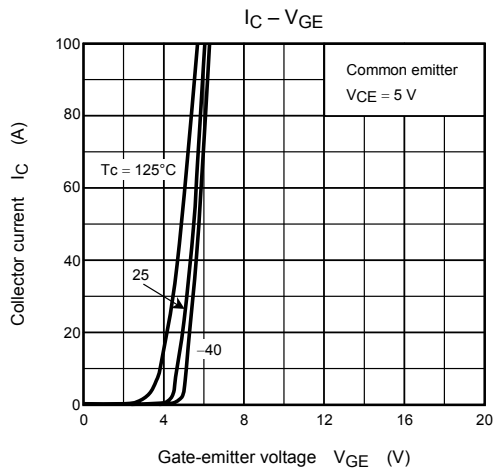
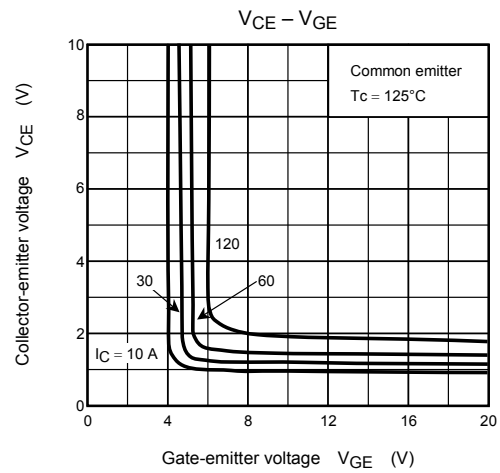
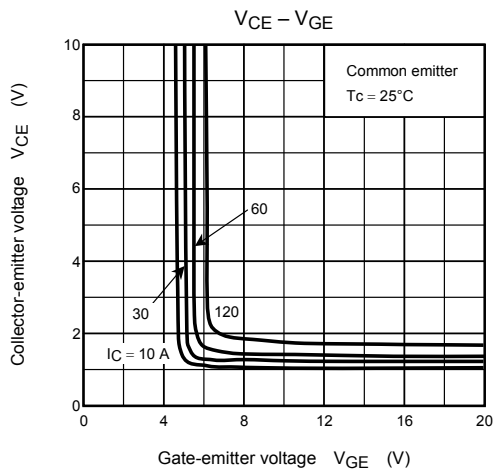
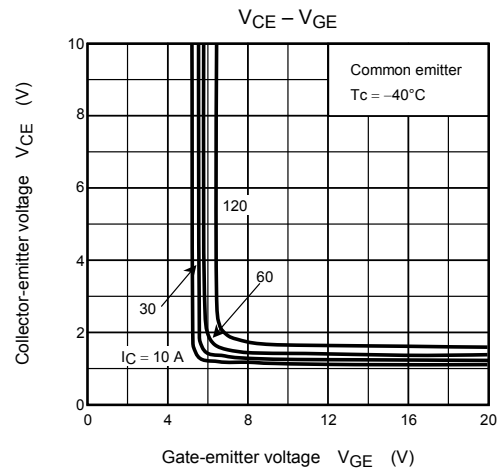
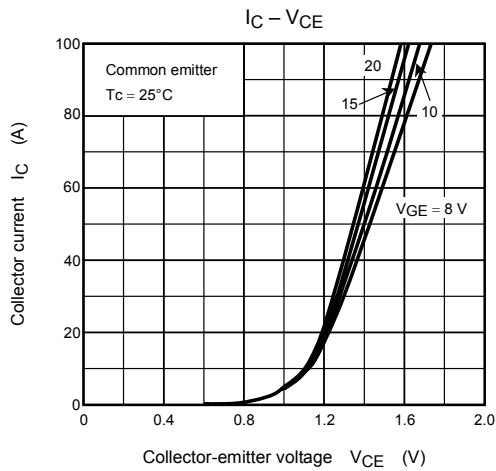
Weight: 9.75 g (typ.)

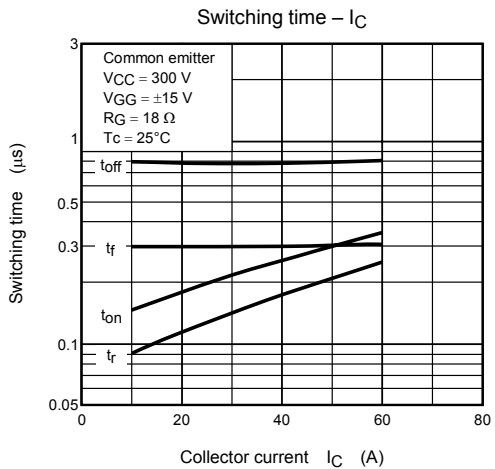
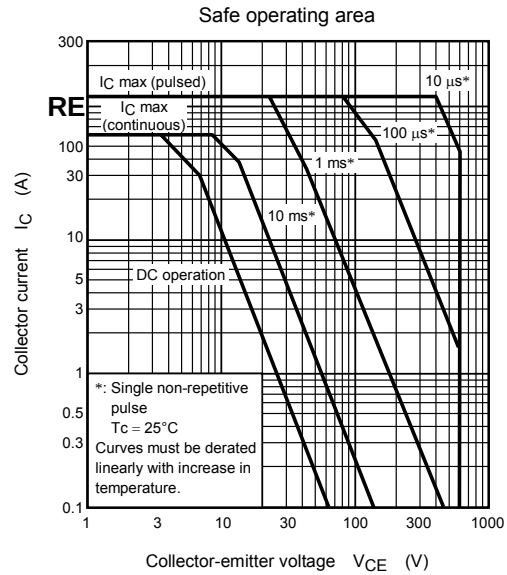
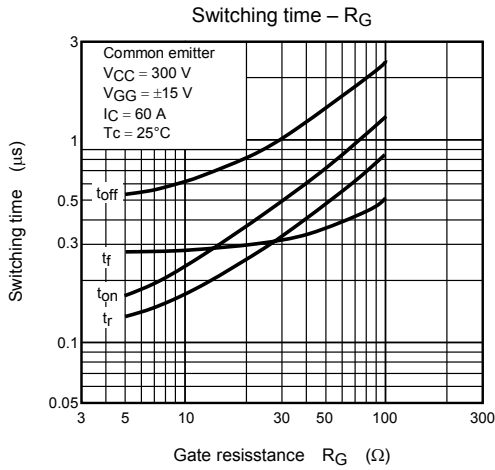
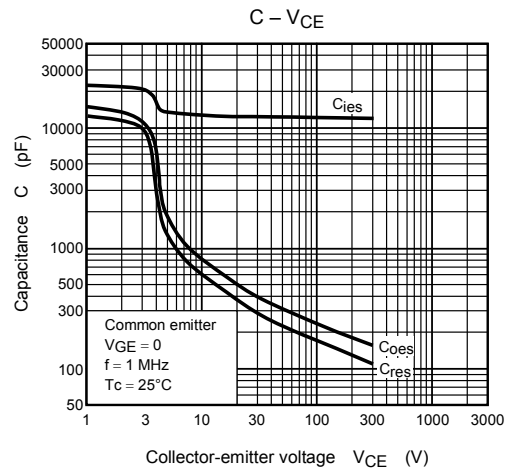
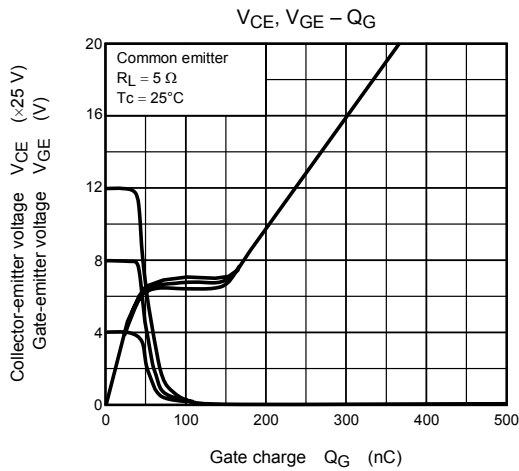
Equivalent Circuit

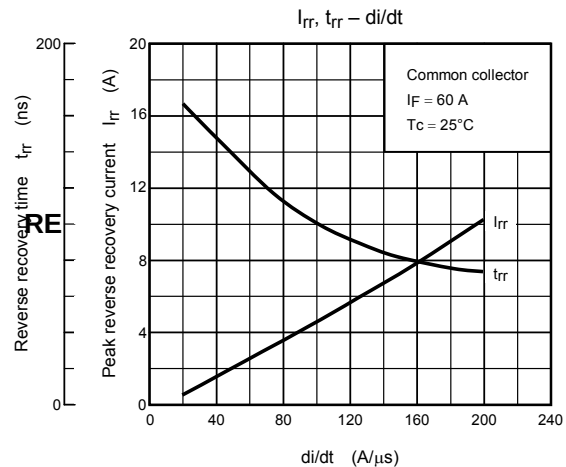
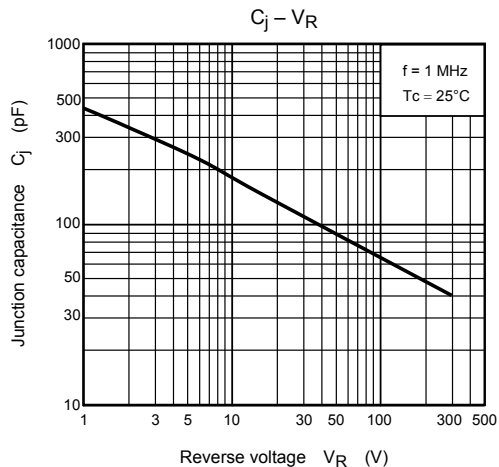
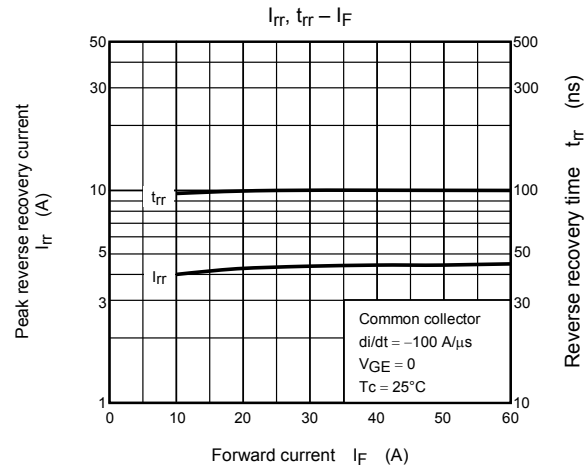
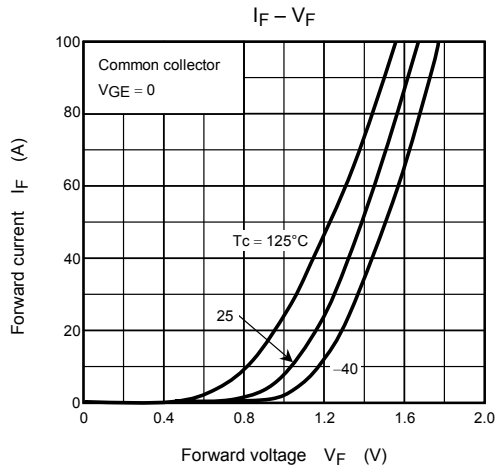
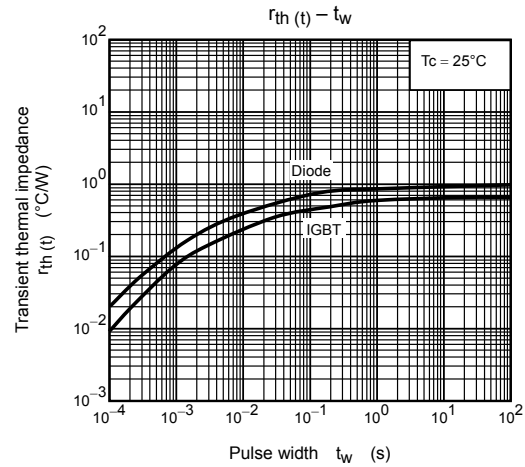
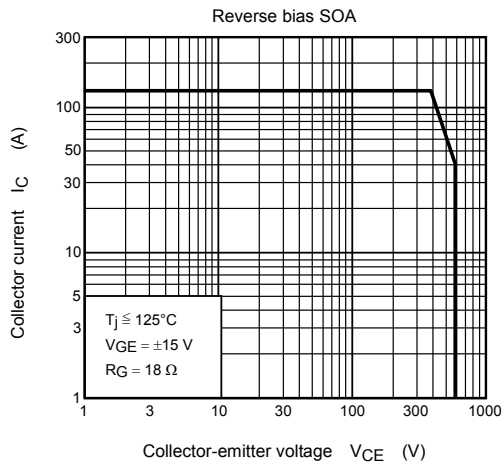


## Electrical Characteristics (Ta = 25°C)

| Characteristics                      |               | Symbol                     | Test Condition                                                                     | Min | Typ.  | Max       | Unit                        |
|--------------------------------------|---------------|----------------------------|------------------------------------------------------------------------------------|-----|-------|-----------|-----------------------------|
| Gate leakage current                 |               | $I_{GES}$                  | $V_{GE} = \pm 25 \text{ V}, V_{CE} = 0$                                            | —   | —     | $\pm 500$ | nA                          |
| Collector cut-off current            |               | $I_{CES}$                  | $V_{CE} = 600 \text{ V}, V_{GE} = 0$                                               | —   | —     | 1.0       | mA                          |
| Gate-emitter cut-off voltage         |               | $V_{GE} \text{ (OFF)}$     | $I_C = 60 \text{ mA}, V_{CE} = 5 \text{ V}$                                        | 3.0 | —     | 6.0       | V                           |
| Collector-emitter saturation voltage |               | $V_{CE} \text{ (sat) (1)}$ | $I_C = 10 \text{ A}, V_{GE} = 15 \text{ V}$                                        | —   | 1.2   | 1.7       | V                           |
|                                      |               | $V_{CE} \text{ (sat) (2)}$ | $I_C = 60 \text{ A}, V_{GE} = 15 \text{ V}$                                        | —   | 1.55  | 1.9       |                             |
| Input capacitance                    |               | $C_{ies}$                  | $V_{CE} = 10 \text{ V}, V_{GE} = 0, f = 1 \text{ MHz}$                             | —   | 13500 | —         | pF                          |
| Switching time                       | Rise time     | $t_r$                      |  | —   | 0.25  | —         | $\mu\text{s}$               |
|                                      | Turn-on time  | $t_{on}$                   |                                                                                    | —   | 0.35  | —         |                             |
|                                      | Fall time     | $t_f$                      |                                                                                    | —   | 0.30  | 0.50      |                             |
|                                      | Turn-off time | $t_{off}$                  |                                                                                    | —   | 0.80  | —         |                             |
| Forward voltage                      |               | $V_F$                      | $I_F = 60 \text{ A}, V_{GE} = 0$                                                   | —   | 1.5   | 2.0       | V                           |
| Reverse recovery time                |               | $t_{rr}$                   | $I_F = 60 \text{ A}, V_{GE} = 0, di/dt = -100 \text{ A}/\mu\text{s}$               | —   | 0.1   | 0.2       | $\mu\text{s}$               |
| Thermal resistance (IGBT)            |               | $R_{th} \text{ (j-c)}$     | —                                                                                  | —   | —     | 0.625     | $^{\circ}\text{C}/\text{W}$ |
| Thermal resistance (Diode)           |               | $R_{th} \text{ (j-c)}$     | —                                                                                  | —   | —     | 0.96      | $^{\circ}\text{C}/\text{W}$ |







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