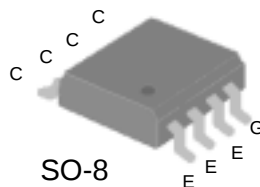


## N-CHANNEL INSULATED-GATE BIPOLAR TRANSISTOR

High input impedance

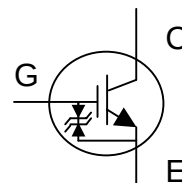
High peak current capability

3.3V gate drive



$V_{CE}$  450V

$I_{CP}$  130A



### Absolute Maximum Ratings

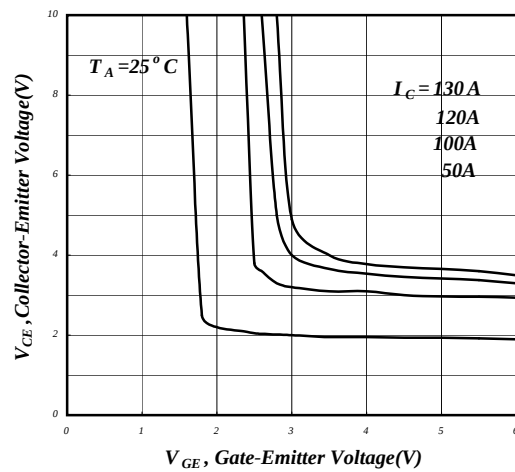
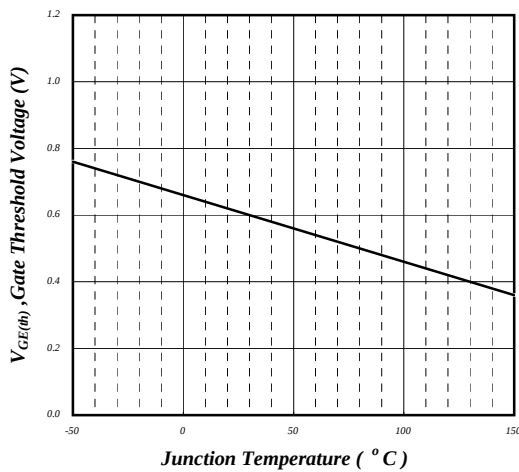
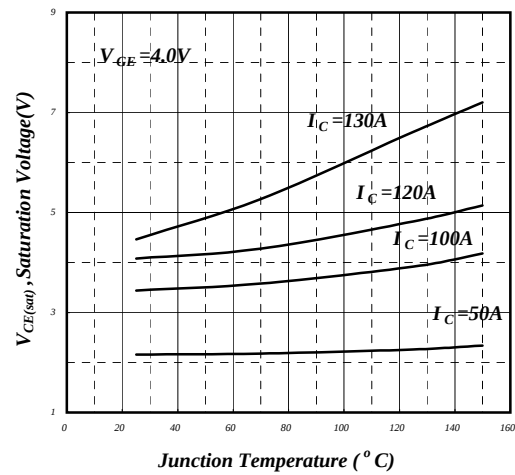
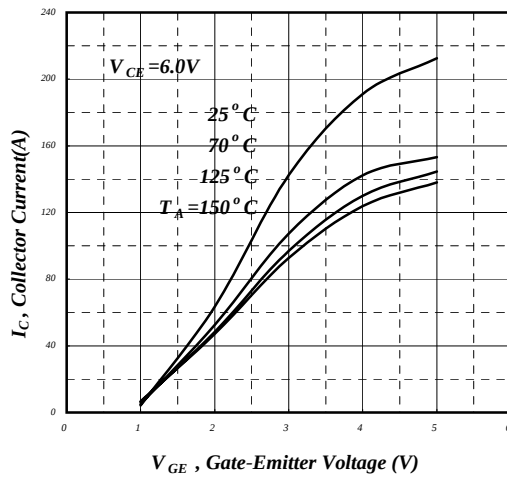
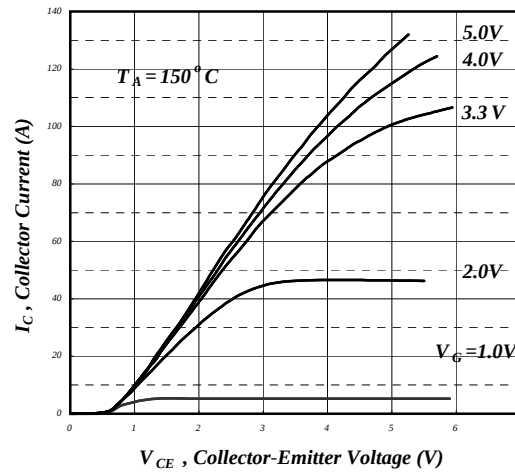
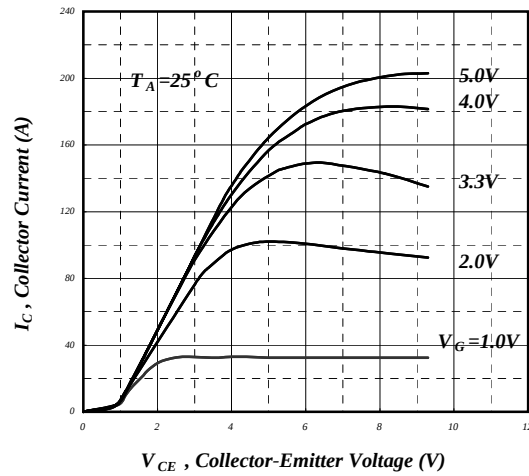
| Symbol                   | Parameter                            | Rating     | Units      |
|--------------------------|--------------------------------------|------------|------------|
| $V_{CE}$                 | Collector-Emitter Voltage            | 450        | V          |
| $V_{GE}$                 | Gate-Emitter Voltage                 | $\pm 6$    | V          |
| $V_{GEP}$                | Pulsed Gate-Emitter Voltage          | $\pm 8$    | V          |
| $I_{CP}$                 | Pulsed Collector Current             | 130        | A          |
| $P_D @ T_C=25^\circ C^1$ | Maximum Power Dissipation            | 2.5        | W          |
| $T_{STG}$                | Storage Temperature Range            | -55 to 150 | $^\circ C$ |
| $T_J$                    | Operating Junction Temperature Range | -55 to 150 | $^\circ C$ |

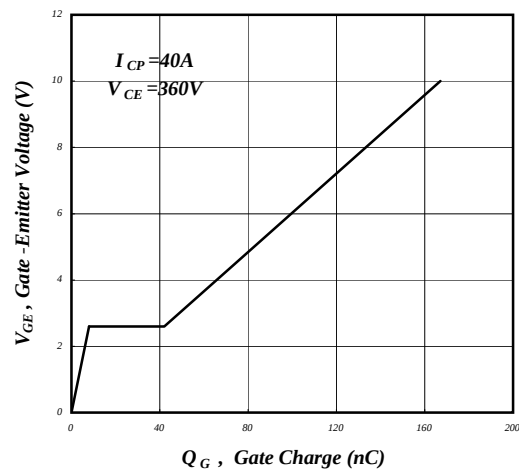
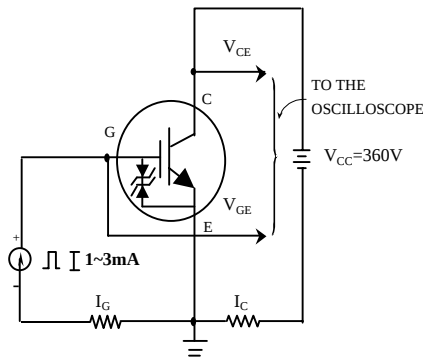
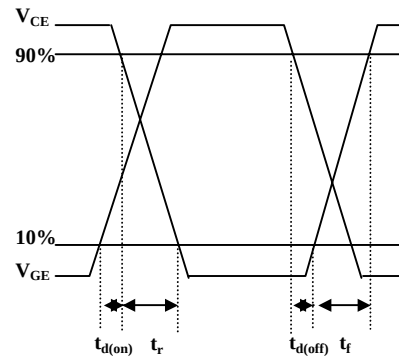
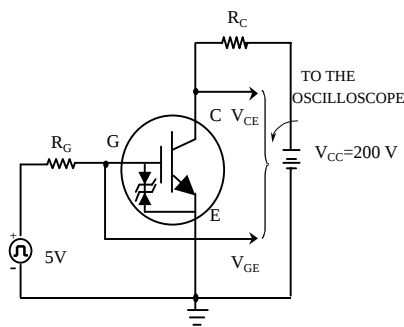
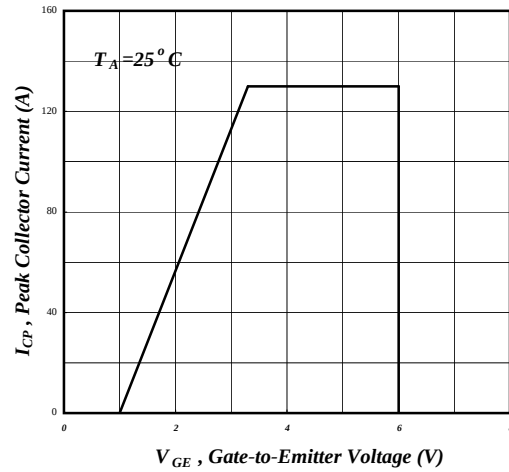
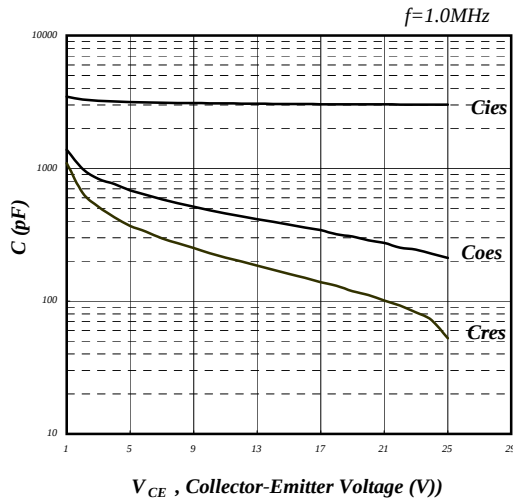
### Electrical Characteristics @ $T_J=25^\circ C$ (unless otherwise specified)

| Symbol        | Parameter                                              | Test Conditions                     | Min. | Typ. | Max. | Units        |
|---------------|--------------------------------------------------------|-------------------------------------|------|------|------|--------------|
| $I_{GES}$     | Gate-Emitter Leakage Current                           | $V_{GE}=\pm 6V, V_{CE}=0V$          | -    | -    | 10   | $\mu A$      |
| $I_{CES}$     | Collector-Emitter Leakage Current ( $T_J=25^\circ C$ ) | $V_{CE}=450V, V_{GE}=0V$            | -    | -    | 10   | $\mu A$      |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage                   | $V_{GE}=3.3V, I_{CP}=130A$ (Pulsed) | -    | 3.8  | 6    | V            |
| $V_{GE(th)}$  | Gate Threshold Voltage                                 | $V_{CE}=V_{GE}, I_C=250\mu A$       | -    | -    | 1    | V            |
| $Q_g$         | Total Gate Charge                                      | $I_C=40A$                           | -    | 74   | 120  | nC           |
| $Q_{ge}$      | Gate-Emitter Charge                                    | $V_{CE}=360V$                       | -    | 8    | -    | nC           |
| $Q_{gc}$      | Gate-Collector Charge                                  | $V_{GE}=4.5V$                       | -    | 34   | -    | nC           |
| $t_{d(on)}$   | Turn-on Delay Time                                     | $V_{CC}=200V$                       | -    | 20   | -    | ns           |
| $t_r$         | Rise Time                                              | $I_C=15A$                           | -    | 100  | -    | ns           |
| $t_{d(off)}$  | Turn-off Delay Time                                    | $R_G=10\Omega$                      | -    | 400  | -    | ns           |
| $t_f$         | Fall Time                                              | $V_{GE}=5V$                         | -    | 3    | -    | $\mu s$      |
| $C_{ies}$     | Input Capacitance                                      | $V_{GE}=0V$                         | -    | 3020 | 4830 | pF           |
| $C_{oes}$     | Output Capacitance                                     | $V_{CE}=25V$                        | -    | 220  | -    | pF           |
| $C_{res}$     | Reverse Transfer Capacitance                           | $f=1.0MHz$                          | -    | 50   | -    | pF           |
| $R_{thJA}^1$  | Thermal Resistance Junction-Ambient                    |                                     | -    | -    | 50   | $^\circ C/W$ |

### Notes:

1. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board ; 125 $^\circ C/W$  when mounted on min. copper pad.





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