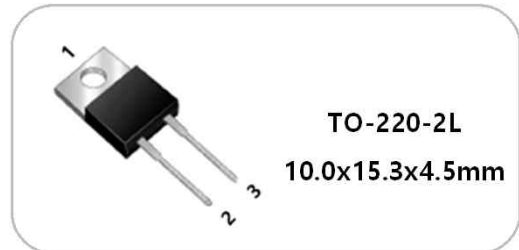


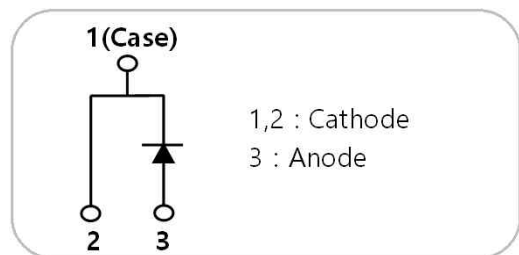

General description

| Symbol | Value |
|-----------------------------------|-----------|
| V_{BR} @ $T_C=25^\circ\text{C}$ | Min 1200V |
| I_F @ $T_C=150^\circ\text{C}$ | 20A |
| Q_C | Typ 105nC |


Package


Features

- Low forward voltage
- 175°C maximum operating temperature
- Negligible reverse recovery current.
- Fast switching speed



Applications

- General purpose
- Switching mode power supply
- Boot diodes in PFC at DC/DC
- Industrial motor drives
- Motor drivers
- Solar inverters


Maximum ratings ($T_C = 25^\circ\text{C}$)

| Parameter | Symbol | Test condition | Value | Unit |
|---|------------------|---------------------------------|------------|------------------|
| Repetitive peak reverse voltage | V_{RRM} | - | 1200 | V |
| DC peak reverse voltage | V_R | - | 1200 | V |
| Continuous forward current | I_F | $T_C=150^\circ\text{C}$ | 20 | A |
| Non-repetitive forward surge current | I_{FSM} | $t_p=10$ ms, Half sine pulse | 150 | A |
| Power dissipation | P_{tot} | $T_C=25^\circ\text{C}$ | 165 | W |
| Operating and storage temperature range | $T_{j, T_{stg}}$ | - | -55 to 175 | $^\circ\text{C}$ |

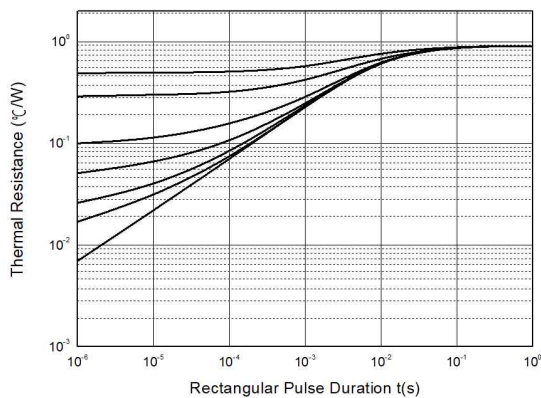
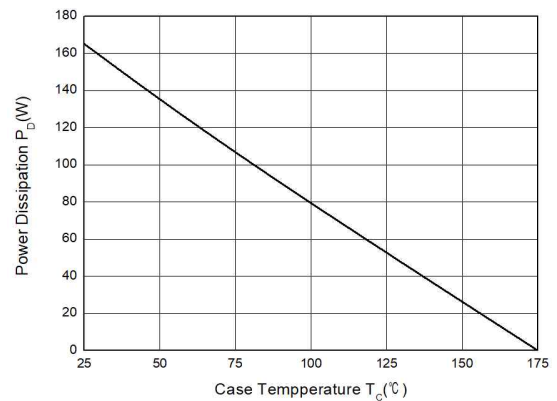



Electrical characteristics ($T_C = 25^\circ\text{C}$)

| Parameter | Symbol | Test condition | Value | | | Unit |
|-------------------------|--------|---|-------|------|-----|---------------|
| | | | Min | Typ | Max | |
| Forward voltage | V_F | $I_F=20\text{A}, T_C=25^\circ\text{C}$ | - | 1.5 | - | V |
| | | $I_F=20\text{A}, T_C=175^\circ\text{C}$ | - | 1.85 | - | V |
| Reverse current | I_R | $V_R=1200\text{V}, T_C=25^\circ\text{C}$ | - | 30 | 200 | μA |
| | | $V_R=1200\text{V}, T_C=175^\circ\text{C}$ | - | 55 | - | μA |
| Total capacitive charge | Q_C | $V_R=800\text{V}, T_j=25^\circ\text{C},$ $Q_C = \int C(V)dV$ | - | 105 | - | nC |
| Total capacitance | C | $V_R=1\text{V}, f=1\text{MHz}$ | - | 1175 | - | pF |
| | | $V_R=800\text{V}, f=1\text{MHz}$ | - | 100 | - | pF |

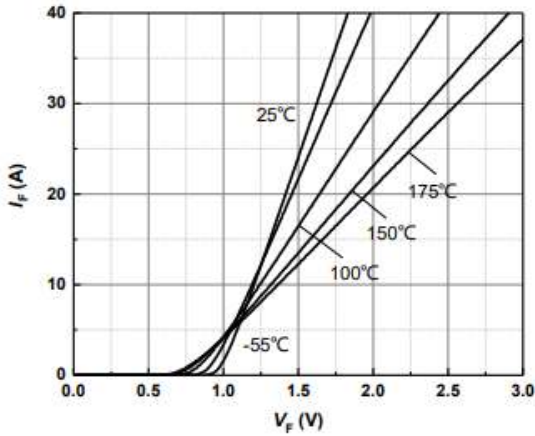

Thermal characteristics ($T_C = 25^\circ\text{C}$)

| Symbol | Parameter | Max | Unit |
|---------------|------------------|-----|---------------------------|
| $R_{th(j-c)}$ | Junction to case | 0.9 | $^\circ\text{C}/\text{W}$ |

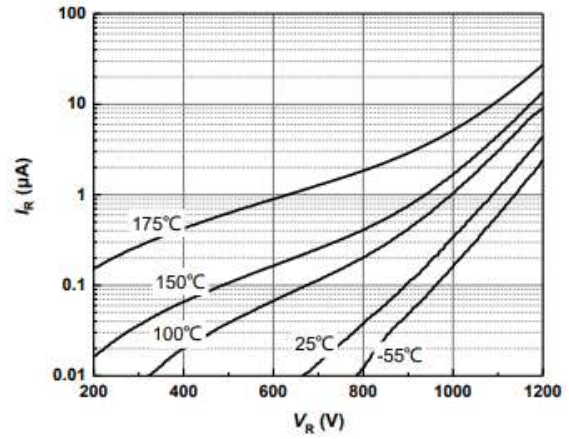
 $t_p - Z_{thjc}$ Characteristics

 $T_C - P_D$ Characteristics


Typical electrical characteristics curves ($T_C = 25^\circ\text{C}$)

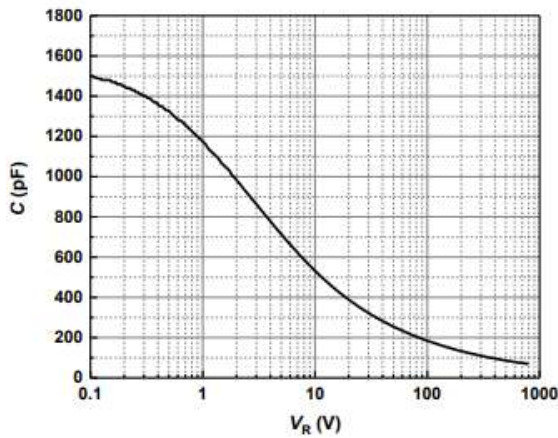
$V_F - I_F$ Characteristics



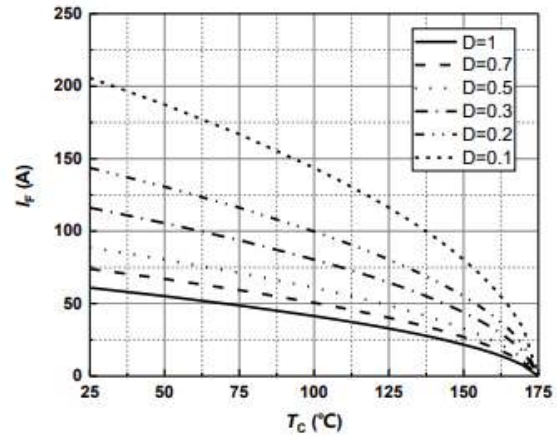
$V_R - I_R$ Characteristics



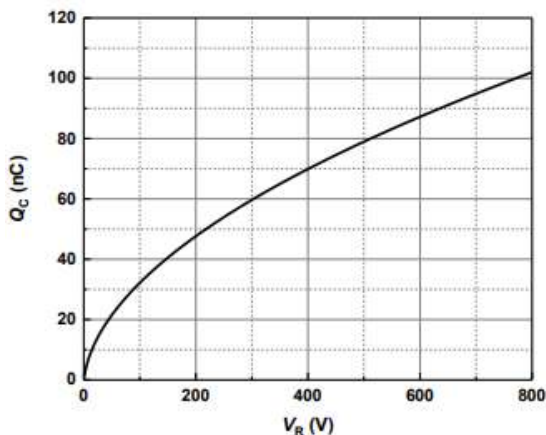
$V_R - C_T$ Characteristics



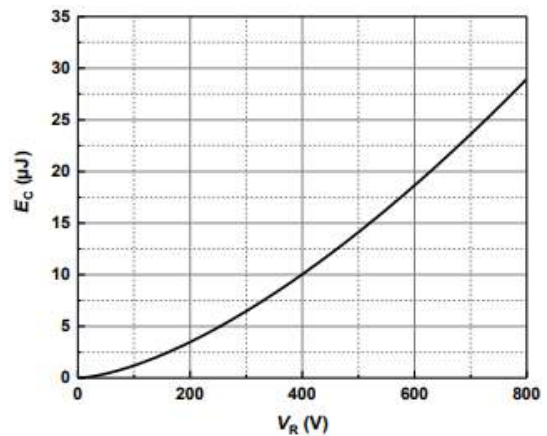
$T_C - I_F$ Characteristics



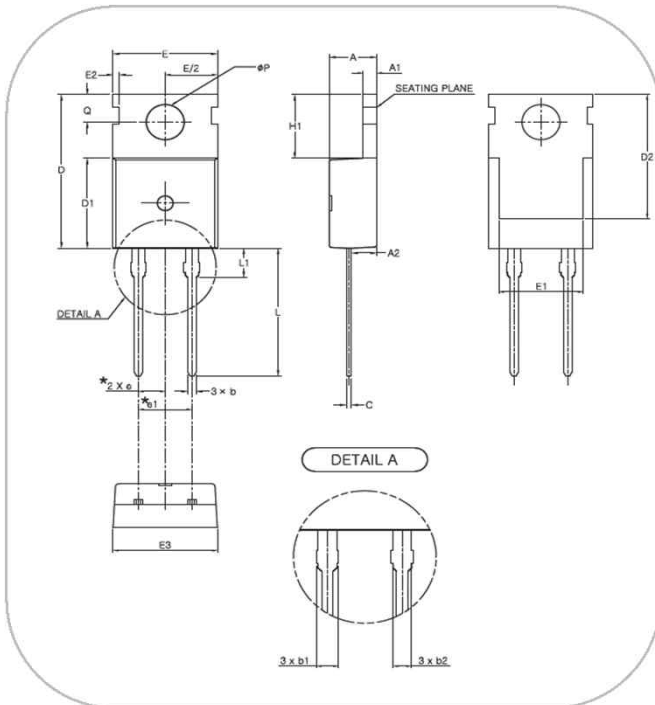
$V_R - Q_C$ Characteristics



$V_R - E_C$ Characteristics

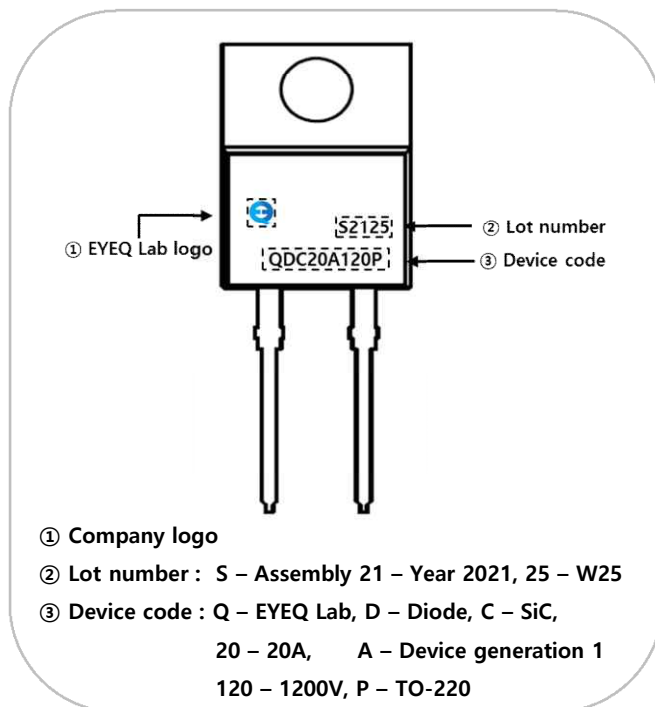


Package dimensions(TO-220-2L)



| Symbol | Min | Nom | Max |
|--------|----------|-------|-------|
| A | 4.30 | 4.50 | 4.70 |
| A1 | 1.25 | 1.30 | 1.40 |
| A2 | 2.20 | 2.40 | 2.60 |
| b | 0.70 | 0.80 | 0.90 |
| b1 | 1.42 | 1.52 | 1.62 |
| b2 | 1.17 | 1.27 | 1.37 |
| c | 0.45 | 0.50 | 0.60 |
| D | 15.50 | 15.70 | 15.90 |
| D1 | 9.00 | 9.20 | 9.40 |
| D2 | (12.70) | | |
| E | 9.70 | 9.90 | 10.10 |
| E1 | (8.00) | | |
| E2 | (0.60) | | |
| E3 | 9.70 | 9.90 | 10.10 |
| e | 2.54 BSC | | |
| e1 | 5.08 BSC | | |
| H1 | 6.30 | 6.50 | 6.70 |
| L | 12.88 | 13.08 | 13.28 |
| L1 | (3.00) | | |
| ØP | 3.50 | 3.60 | 3.70 |
| Q | 2.70 | 2.80 | 2.90 |

Marking information



- ① Company logo
- ② Lot number : S – Assembly 21 – Year 2021, 25 – W25
- ③ Device code : Q – EYEQ Lab, D – Diode, C – SiC,
20 – 20A, A – Device generation 1
120 – 1200V, P – TO-220

