

### General Description

The 80P10 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

### Features

- P-Channel
- Low ON-resistance.
- Fast Switching
- 100% avalanche tested

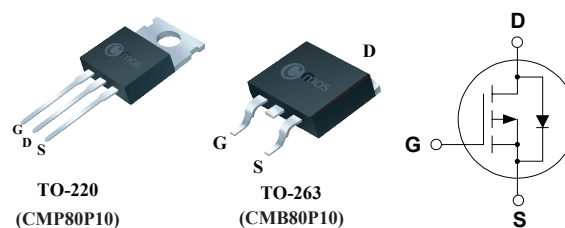
### Product Summary

| BVDSS | RDS(ON) | ID   |
|-------|---------|------|
| -100V | 25mΩ    | -80A |

### Applications

- Inverters
- Motor drive
- DC / DC converter

### TO-220/263 Pin Configuration



### Absolute Maximum Ratings

| Symbol                     | Parameter                                  | Rating     | Units            |
|----------------------------|--------------------------------------------|------------|------------------|
| $V_{DS}$                   | Drain-Source Voltage                       | -100       | V                |
| $V_{GS}$                   | Gate-Source Voltage                        | $\pm 20$   | V                |
| $I_D@T_C=25^\circ\text{C}$ | Continuous Drain Current                   | -80        | A                |
| $I_D@T_C=25^\circ\text{C}$ | Continuous Drain Current                   | -56        | A                |
| $I_{DM}$                   | Pulsed Drain Current                       | -320       | A                |
| EAS                        | Single Pulse Avalanche Energy <sup>1</sup> | 841        | mJ               |
| $P_D@T_C=25^\circ\text{C}$ | Total Power Dissipation                    | 250        | W                |
| $T_{STG}$                  | Storage Temperature Range                  | -55 to 150 | $^\circ\text{C}$ |
| $T_J$                      | Operating Junction Temperature Range       | 150        | $^\circ\text{C}$ |

### Thermal Data

| Symbol          | Parameter                           | Typ. | Max. | Unit               |
|-----------------|-------------------------------------|------|------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance Junction-ambient | ---  | 62   | $^\circ\text{C/W}$ |
| $R_{\theta JC}$ | Thermal Resistance Junction-case    | ---  | 1    | $^\circ\text{C/W}$ |

### Electrical Characteristics ( $T_J=25^\circ\text{C}$ , unless otherwise noted)

| Symbol       | Parameter                         | Conditions                             | Min. | Typ.  | Max.      | Unit      |
|--------------|-----------------------------------|----------------------------------------|------|-------|-----------|-----------|
| $BV_{DS}$    | Drain-Source Breakdown Voltage    | $V_{GS}=0V$ , $I_D=-250\mu A$          | -100 | ---   | ---       | V         |
| $R_{DS(ON)}$ | Static Drain-Source On-Resistance | $V_{GS}=-10V$ , $I_D=-20A$             | ---  | 21    | 25        | $m\Omega$ |
| $V_{GS(th)}$ | Gate Threshold Voltage            | $V_{GS}=V_{DS}$ , $I_D=-250\mu A$      | -2   | ---   | -4        | V         |
| $I_{DSS}$    | Drain-Source Leakage Current      | $V_{DS}=-100V$ , $V_{GS}=0V$           | ---  | ---   | -1        | $\mu A$   |
| $I_{GSS}$    | Gate-Source Leakage Current       | $V_{GS}=\pm 20V$ , $V_{DS}=0V$         | ---  | ---   | $\pm 100$ | nA        |
| $g_{fs}$     | Forward Transconductance          | $V_{DS}=-10V$ , $I_D=-20A$             | ---  | 30    | ---       | S         |
| $Q_g$        | Total Gate Charge                 | $I_D=-80A$                             | ---  | 95    | ---       | nC        |
| $Q_{gs}$     | Gate-Source Charge                | $V_{DS}=-50V$                          | ---  | 40    | ---       |           |
| $Q_{gd}$     | Gate-Drain Charge                 | $V_{GS}=-4.5V$                         | ---  | 50    | ---       |           |
| $T_{d(on)}$  | Turn-On Delay Time                | $V_{DS}=-50V$                          | ---  | 20    | ---       | ns        |
| $T_r$        | Rise Time                         | $I_D=-80A$                             | ---  | 510   | ---       |           |
| $T_{d(off)}$ | Turn-Off Delay Time               | $R_L=0.56\Omega$ , $R_G=1\Omega$       | ---  | 150   | ---       |           |
| $T_f$        | Fall Time                         | $V_{GS}=-10V$                          | ---  | 870   | ---       |           |
| $C_{iss}$    | Input Capacitance                 | $V_{DS}=-25V$ , $V_{GS}=0V$ , $f=1MHz$ | ---  | 11000 | ---       | pF        |
| $C_{oss}$    | Output Capacitance                |                                        | ---  | 420   | ---       |           |
| $C_{rss}$    | Reverse Transfer Capacitance      |                                        | ---  | 60    | ---       |           |

### Diode Characteristics

| Symbol   | Parameter                 | Conditions                   | Min. | Typ.  | Max. | Unit |
|----------|---------------------------|------------------------------|------|-------|------|------|
| $I_S$    | Continuous Source Current | $V_G=V_D=0V$ , Force Current | ---  | ---   | -80  | A    |
| $I_{SM}$ | Pulsed Source Current     |                              | ---  | ---   | -320 | A    |
| $V_{SD}$ | Diode Forward Voltage     | $V_{GS}=0V$ , $I_S=-20A$     | ---  | -0.84 | -1.2 | V    |

Notes:

1. The EAS data shows Max. rating. The test condition is  $V_{DS}=-50V$ ,  $V_{GS}=-10V$ ,  $L=0.5mH$ ,  $I_{AS}=-58A$ .

This product has been designed and qualified for the consumer market.  
Cmos assumes no liability for customers' product design or applications.  
Cmos reserves the right to improve product design, functions and reliability without notice.