

## Electrical Characteristics (LM7812)

Refer to the test circuit,  $-40^{\circ}\text{C} < T_J < 125^{\circ}\text{C}$ ,  $I_O = 500\text{ mA}$ ,  $V_I = 19\text{ V}$ ,  $C_I = 0.33\text{ }\mu\text{F}$ ,  $C_O = 0.1\text{ }\mu\text{F}$ , unless otherwise specified.

| Symbol                | Parameter                            | Conditions   | Min.                                   | Typ. | Max. | Unit                   |    |
|-----------------------|--------------------------------------|--|--|------|------|------------------------|----|
| $V_O$                 | Output Voltage                       | $T_J = +25^{\circ}\text{C}$  | 11.5                                   | 12.0 | 12.5 | V                      |    |
|                       |                                      | $I_O = 5\text{ mA to }1\text{ A}$ , $P_O \leq 15\text{ W}$ ,<br>$V_I = 14.5\text{ V to }27\text{ V}$ | 11.4                                   | 12.0 | 12.6 |                        |    |
| Regline               | Line Regulation <sup>(12)</sup>      | $T_J = +25^{\circ}\text{C}$  | $V_I = 14.5\text{ V to }30\text{ V}$   |      | 10   | 240                    | mV |
|                       |                                      |  | $V_I = 16\text{ V to }22\text{ V}$     |      | 3    | 120                    |    |
| Regload               | Load Regulation <sup>(12)</sup>      | $T_J = +25^{\circ}\text{C}$  | $I_O = 5\text{ mA to }1.5\text{ A}$    |      | 11   | 240                    | mV |
|                       |                                      |  | $I_O = 250\text{ mA to }750\text{ mA}$ |      | 5    | 120                    |    |
| $I_Q$                 | Quiescent Current                    | $T_J = +25^{\circ}\text{C}$  |  | 5.1  | 8.0  | mA                     |    |
| $\Delta I_Q$          | Quiescent Current Change             | $I_O = 5\text{ mA to }1\text{ A}$  |  | 0.1  | 0.5  | mA                     |    |
|                       |                                      | $V_I = 14.5\text{ V to }30\text{ V}$   |  | 0.5  | 1.0  |                        |    |
| $\Delta V_O/\Delta T$ | Output Voltage Drift <sup>(13)</sup> | $I_O = 5\text{ mA}$  |  | -1   |      | mV/ $^{\circ}\text{C}$ |    |
| $V_N$                 | Output Noise Voltage                 | $f = 10\text{ Hz to }100\text{ kHz}$ , $T_A = +25^{\circ}\text{C}$                                   |  | 76   |      | $\mu\text{V}$          |    |
| RR                    | Ripple Rejection <sup>(13)</sup>     | $f = 120\text{ Hz}$ , $V_I = 15\text{ V to }25\text{ V}$   | 55                                     | 71   |      | dB                     |    |
| $V_{\text{DROP}}$     | Dropout Voltage                      | $I_O = 1\text{ A}$ , $T_J = +25^{\circ}\text{C}$   |  | 2    |      | V                      |    |
| $R_O$                 | Output Resistance <sup>(13)</sup>    | $f = 1\text{ kHz}$   |  | 18   |      | m $\Omega$             |    |
| $I_{\text{SC}}$       | Short-Circuit Current                | $V_I = 35\text{ V}$ , $T_J = +25^{\circ}\text{C}$  |  | 230  |      | mA                     |    |
| $I_{\text{PK}}$       | Peak Current <sup>(13)</sup>         | $T_J = +25^{\circ}\text{C}$  |  | 2.2  |      | A                      |    |

### Notes:

12. Load and line regulation are specified at constant junction temperature. Changes in  $V_O$  due to heating effects must be taken into account separately. Pulse testing with low duty is used.
13. These parameters, although guaranteed, are not 100% tested in production.