

## FEATURE

- Low gate charge
- Low  $C_{iss}$
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

Maximum output current

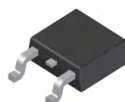
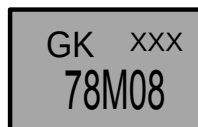
$I_{OM}$ : 0.5 A

Output voltage

$V_O$ : 8V

Continuous total dissipation

$P_D$ : 1.25 W ( $T_a = 25^\circ\text{C}$ )



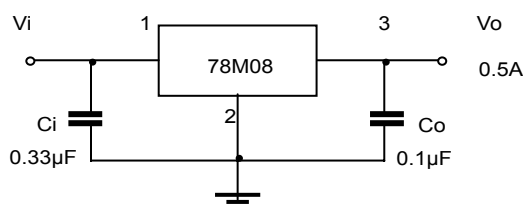
## ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

| Parameter                                   | Symbol          | Value    | Unit               |
|---------------------------------------------|-----------------|----------|--------------------|
| Input Voltage                               | $V_i$           | 35       | V                  |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 80       | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range        | $T_{OPR}$       | -40~+125 | $^\circ\text{C}$   |
| Storage Temperature Range                   | $T_{STG}$       | -65~+150 | $^\circ\text{C}$   |

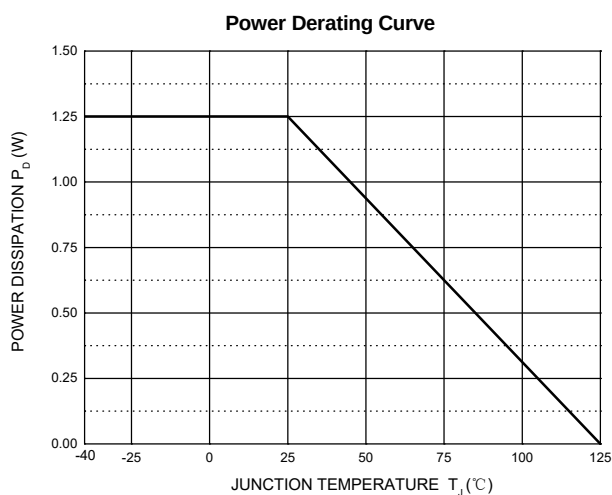
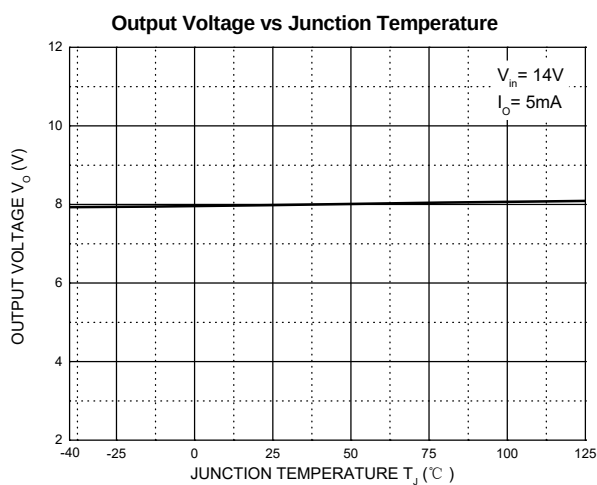
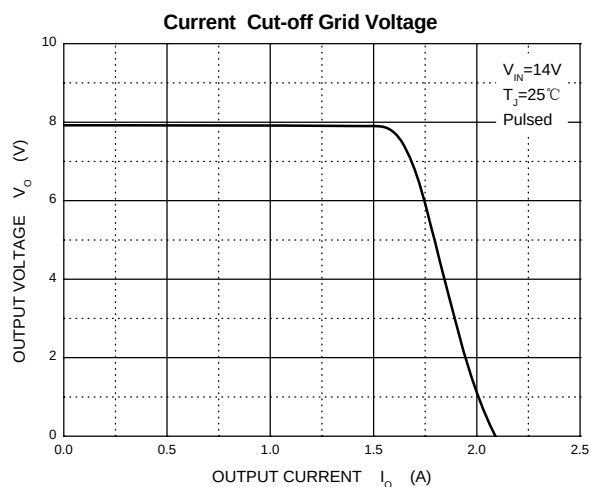
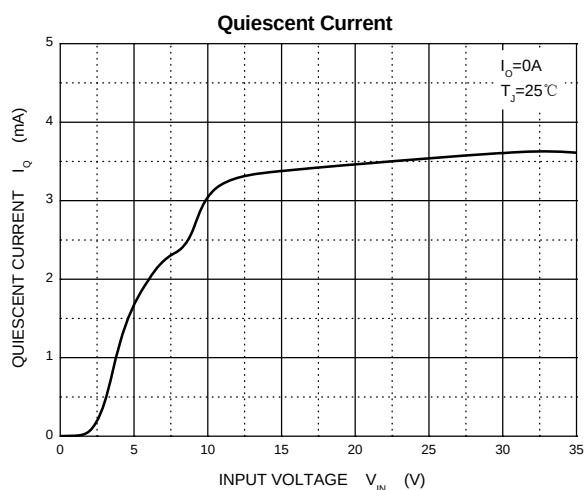
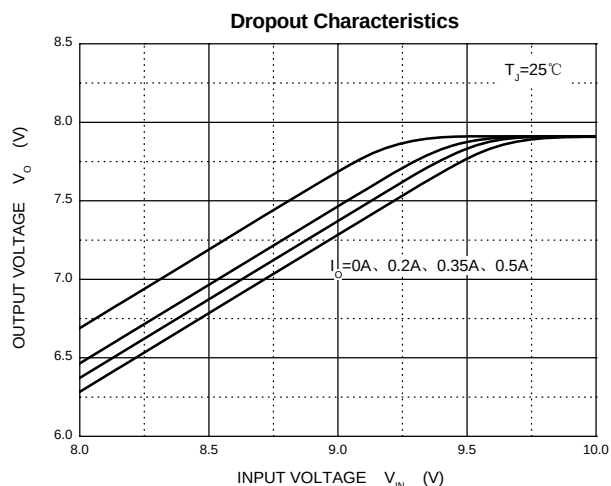
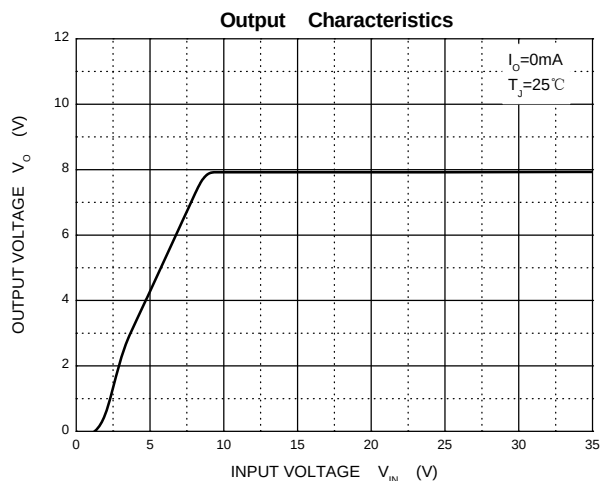
## ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE

| Parameter                | Symbol       | Test conditions                                                                     | Min  | Typ | Max  | Unit              |
|--------------------------|--------------|-------------------------------------------------------------------------------------|------|-----|------|-------------------|
| Output Voltage           | $V_O$        | $T_J = 25^\circ\text{C}$                                                            | 7.76 | 8   | 8.24 | V                 |
|                          |              | $10.5 \leq V_i \leq 23\text{V}, I_O = 5\text{mA} \sim 350\text{mA}$                 | 7.6  | 8   | 8.4  | V                 |
| Load Regulation          | $\Delta V_O$ | $I_O = 5\text{mA} \sim 500\text{mA}, T_J = 25^\circ\text{C}$                        |      | 20  | 160  | mV                |
|                          |              | $I_O = 5\text{mA} \sim 200\text{mA}, T_J = 25^\circ\text{C}$                        |      | 10  | 80   | mV                |
| Line Regulation          | $\Delta V_O$ | $10.5\text{V} \leq V_i \leq 25\text{V}, I_O = 200\text{mA}, T_J = 25^\circ\text{C}$ |      | 6   | 100  | mV                |
|                          |              | $11\text{V} \leq V_i \leq 25\text{V}, I_O = 200\text{mA}, T_J = 25^\circ\text{C}$   |      | 2   | 50   | mV                |
| Quiescent Current        | $I_q$        | $T_J = 25^\circ\text{C}$                                                            |      | 4.6 | 6    | mA                |
| Quiescent Current Change | $\Delta I_q$ | $10.5\text{V} \leq V_i \leq 25\text{V}, I_O = 200\text{mA}$                         |      |     | 0.8  | mA                |
|                          | $\Delta I_q$ | $5\text{mA} \leq I_O \leq 350\text{mA}$                                             |      |     | 0.5  | mA                |
| Output Noise Voltage     | $V_N$        | $10\text{Hz} \leq f \leq 100\text{kHz}, T_J = 25^\circ\text{C}$                     |      | 52  |      | $\mu\text{V}/V_O$ |
| Ripple Rejection         | RR           | $11.5\text{V} \leq V_i \leq 21.5\text{V}, f = 120\text{Hz}, I_O = 300\text{mA}$     | 56   | 80  |      | dB                |
| Dropout Voltage          | $V_d$        | $I_O = 350\text{mA}, T_J = 25^\circ\text{C}$                                        |      | 2   |      | V                 |
| Short Circuit Current    | $I_{sc}$     | $V_i = 14\text{V}, T_J = 25^\circ\text{C}$                                          |      | 250 |      | mA                |
| Peak Current             | $I_{pk}$     | $T_J = 25^\circ\text{C}$                                                            |      | 0.5 |      | A                 |

## TYPICAL APPLICATION

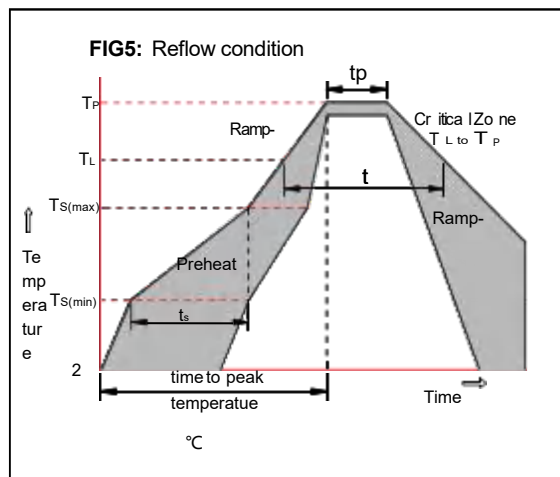


### RATING AND CHARACTERISTIC CURVES



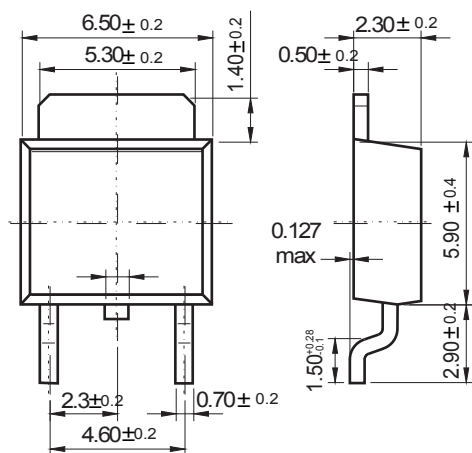
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150°C                             |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200°C                             |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3°C/sec. Max                       |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3°C/sec. Max                       |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217°C                             |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5)°C                      |
| Time within 5°C of actual Peak Temp ( $t_p$ )           |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6°C/sec. Max                       |
| Time 25°C to Peak Temp ( $T_P$ )                        |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260°C                             |

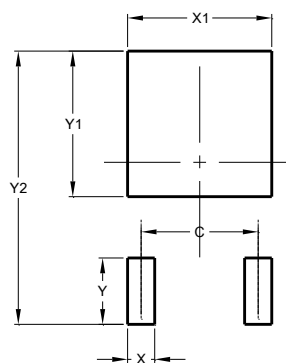


## Package Dimensions & Suggested Pad Layout

### TO-252

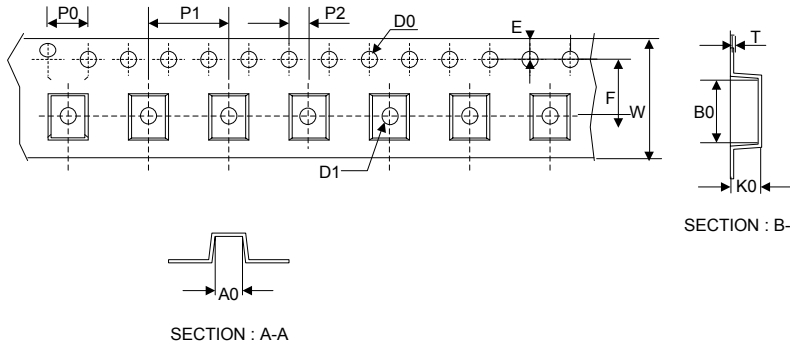
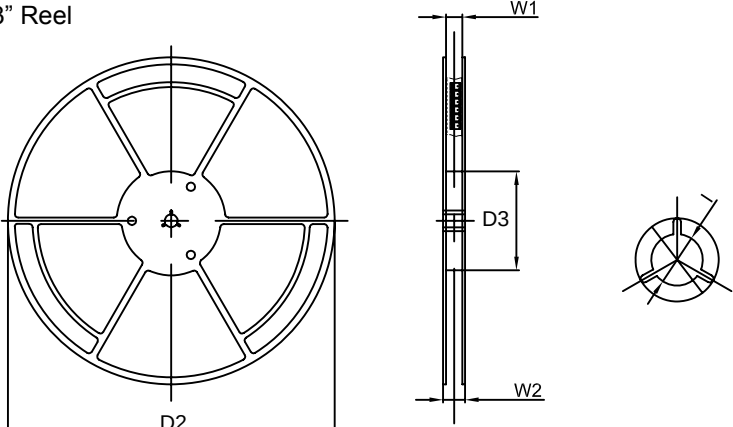


Dimensions in inches and (millimeters)



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.55          |
| X          | 1.50          |
| X1         | 5.80          |
| Y          | 2.70          |
| Y1         | 6.00          |
| Y2         | 10.90         |

## Tape & reel specification

|                                                                                    |  |                   |                |
|------------------------------------------------------------------------------------|--|-------------------|----------------|
| Tape                                                                               |  | Symbol            | Dimension (mm) |
|   |  | P0                | 4.00±0.20      |
|                                                                                    |  | P1                | 8.00±0.20      |
|                                                                                    |  | P2                | 2.00±0.20      |
|                                                                                    |  | D0                | 1.55±0.15      |
|                                                                                    |  | D1                | 1.55±0.20      |
|                                                                                    |  | E                 | 1.75±0.20      |
|                                                                                    |  | F                 | 7.50±0.20      |
|                                                                                    |  | W                 | 16.00±0.20     |
|                                                                                    |  | A0                | 7.10±0.20      |
|                                                                                    |  | B0                | 10.50±0.20     |
|                                                                                    |  | K0                | 2.70±0.20      |
|                                                                                    |  | T                 | 0.30±0.10      |
| 13" Reel                                                                           |  | D2                | 330.0±5.0      |
|  |  | D3                | 100.0±4.0      |
|                                                                                    |  | W1                | 20.0±5.0       |
|                                                                                    |  | W2                | 25.0±5.0       |
|                                                                                    |  | I                 | 13.0±2.0       |
|                                                                                    |  | Quantity: 2500PCS |                |