

## Single Ultra Low VF Schottky Rectifier

## FEATURES AND BENEFITS

- Low power loss, high efficiency operation
- Low forward voltage drop
- Fast switching capability
- High forward surge capability
- Excellent High Temperature Stability

## MECHANICAL DATA

- Epoxy : UL94 V-0 rated flame retardant
- Case: TOLL Package
- Terminals: Matte Tin annealed over copper

| Primary Characteristic                      |       |
|---------------------------------------------|-------|
| $I_O$                                       | 40A   |
| $V_{RRM}$                                   | 45V   |
| $I_{FSM}$                                   | 600A  |
| $V_F$ Typical= 15A, $T_J=125^\circ\text{C}$ | 0.36V |
| $T_{Jmax}$                                  | 150°C |



| Maximum Ratings (Ta=25°C unless otherwise specified)                                               |        |          |                  |             |      |      |
|----------------------------------------------------------------------------------------------------|--------|----------|------------------|-------------|------|------|
| Characteristics                                                                                    |        |          | Symbol           | Value       |      | Unit |
| Peak Repetitive Reverse Voltage                                                                    |        |          | V <sub>RRM</sub> | 45          |      | V    |
| Working Peak Reverse Voltage                                                                       |        |          | V <sub>RWM</sub> | 45          |      | V    |
| DC Blocking Voltage                                                                                |        |          | V <sub>DC</sub>  | 45          |      | V    |
| RMS Reverse Voltage                                                                                |        |          | V <sub>RMS</sub> | 30          |      | V    |
| Average Forward Rectified Current (per diode)                                                      |        |          | I <sub>O</sub>   | 40          |      | Amps |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) |        |          | I <sub>FSM</sub> | 600         |      | Amps |
| Electrical Characteristics (Ta=25°C unless otherwise specified )                                   |        |          |                  |             |      |      |
| Characteristics                                                                                    |        |          | Symbol           | Typ.        | Max. | Unit |
| Forward Voltage Drop <sup>1)</sup>                                                                 | IF=15A | Ta=25°C  | V <sub>F</sub>   | 0.42        | 0.46 | V    |
|                                                                                                    | IF=40A | Ta=25°C  | V <sub>F</sub>   | 0.51        | 0.55 | V    |
|                                                                                                    | IF=15A | Ta=125°C | V <sub>F</sub>   | 0.36        | 0.40 | V    |
|                                                                                                    | IF=40A | Ta=125°C | V <sub>F</sub>   | 0.47        | 0.51 | V    |
| Reverse Current <sup>2)</sup>                                                                      | VR=45V | Ta=25°C  | I <sub>R</sub>   | 120         | 360  | μA   |
|                                                                                                    | VR=45V | Ta=125°C | I <sub>R</sub>   | 40          | 120  | mA   |
| THERMAL CHARACTERISTICS (TA = 25 °C unless otherwise noted)                                        |        |          |                  |             |      |      |
| Characteristics                                                                                    |        |          | Symbol           | Value       |      | Unit |
| Typical Thermal Resistance, junction to case                                                       |        | TOLL     | R <sub>θJC</sub> | 0.45        |      | °C/W |
| Operating Temperature Range ( in DC Mode)                                                          |        |          | T <sub>J</sub>   | -65 to +150 |      | °C   |
| Storage Temperature Range                                                                          |        |          | T <sub>STG</sub> | -65 to +150 |      | °C   |

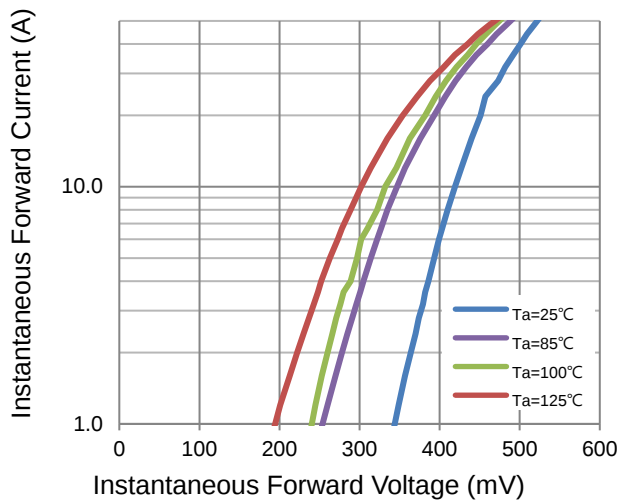
Notes (1): Pulse test: 300μs pulse width, 1% duty cycle.

Notes (2): Pulse width  $\leq 40\text{ms}$

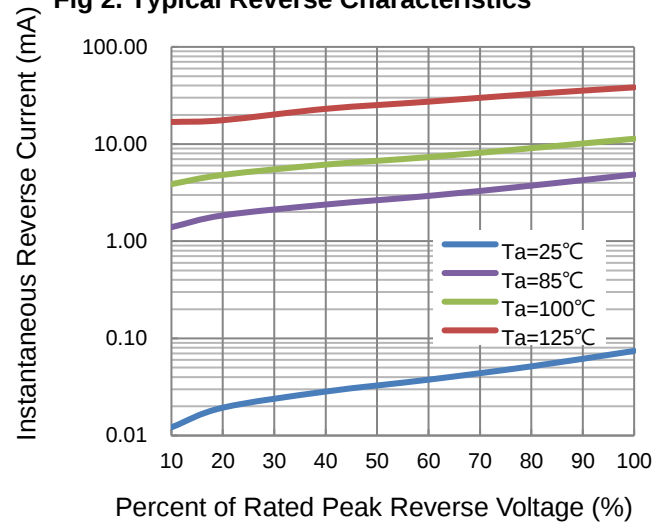
Notes (3): FR-4 PCB, 2oz copper. Minimum recommended pad layout

### RATINGS AND CHARACTERISTICS CURVES

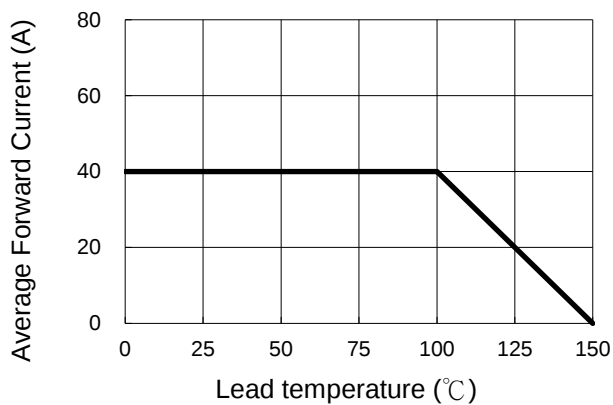
**Fig 1. Typical Forward Characteristics**



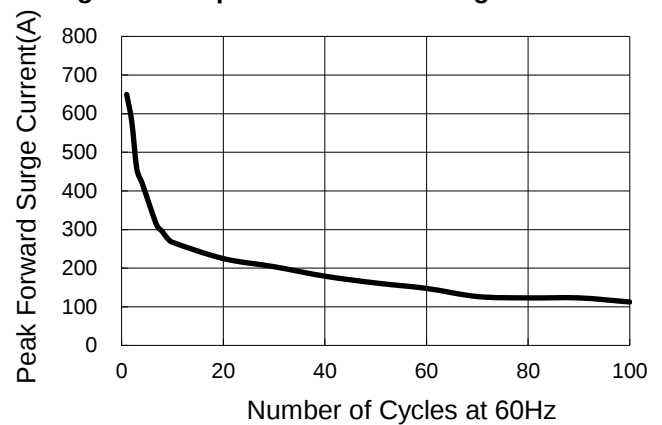
**Fig 2. Typical Reverse Characteristics**



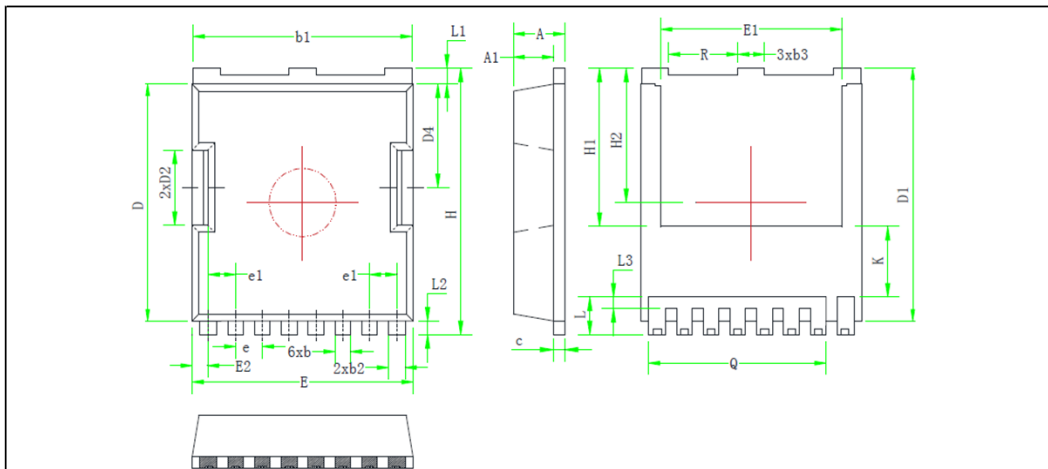
**Fig 3. Typical Forward Current Derating Curve**



**Fig 4. Non-repetitive Forward Surge Current**



### Package Outline Dimensions (in millimeters)

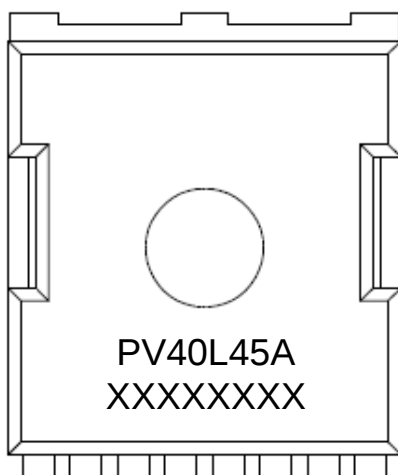


### TOLL

| SYMBOL | Dimensions  |       |        |       |
|--------|-------------|-------|--------|-------|
|        | Millimeters |       | Inches |       |
|        | Min         | Max   | Min    | Max   |
| A      | 2.20        | 2.40  | 0.087  | 0.094 |
| A1     | 1.70        | 1.90  | 0.067  | 0.075 |
| b      | 0.65        | 0.90  | 0.026  | 0.035 |
| b1     | 9.70        | 9.90  | 0.382  | 0.390 |
| b2     | 0.70        | 0.90  | 0.028  | 0.035 |
| b3     | 1.10        | 1.30  | 0.043  | 0.051 |
| c      | 0.40        | 0.60  | 0.016  | 0.024 |
| D      | 10.28       | 10.48 | 0.405  | 0.413 |
| D1     | 10.98       | 11.20 | 0.432  | 0.441 |
| D2     | 3.20        | 3.40  | 0.126  | 0.134 |
| D4     | 4.45        | 4.65  | 0.175  | 0.183 |
| E      | 9.80        | 10.00 | 0.386  | 0.394 |
| E1     | 8.00        | 8.20  | 0.315  | 0.323 |
| E2     | 0.60        | 0.80  | 0.024  | 0.031 |
| e      | 1.20 BSC    |       |        |       |
| e1     | 1.225 BSC   |       |        |       |

| SYMBOL | Dimensions  |       |        |       |
|--------|-------------|-------|--------|-------|
|        | Millimeters |       | Inches |       |
|        | Min         | Max   | Min    | Max   |
| H      | 11.58       | 11.80 | 0.456  | 0.465 |
| H1     | 6.95 BSC    |       |        |       |
| H2     | 5.90 BSC    |       |        |       |
| i      | 0.10 REF.   |       |        |       |
| j      | 0.35 REF.   |       |        |       |
| K      | 3.10 REF.   |       |        |       |
| L      | 1.40        | 2.10  | 0.055  | 0.083 |
| L1     | 0.60        | 0.80  | 0.024  | 0.031 |
| L2     | 0.50        | 0.70  | 0.020  | 0.028 |
| L3     | 0.30        | 0.80  | 0.012  | 0.031 |
| Q      | 7.95 REF.   |       |        |       |
| R      | 3.05        | 3.15  | 0.120  | 0.124 |
| Θ      | 10° REF.    |       |        |       |

### Marking Information



mO-SEMI  
PV40L45A  
XXXXXXXX  
\*A=TOLL

=Series Name  
=Part Number Marking Code  
=Product Tracking Code  
=Single TOLL