

# MSASC25W45K (1N6816) MSASC25W45KR (1N6816R)

45 Volts  
25 Amps

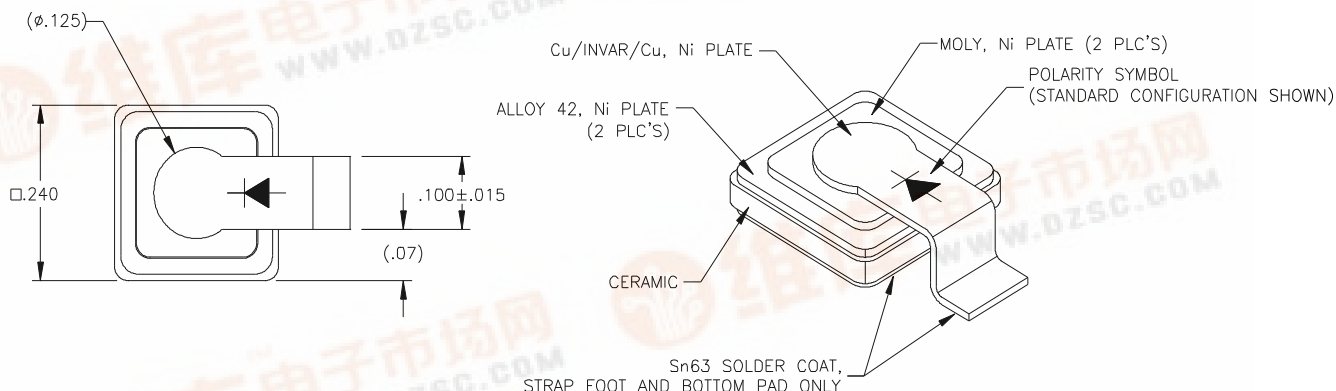
LOW LEAKAGE  
SCHOTTKY DIODE

## Features

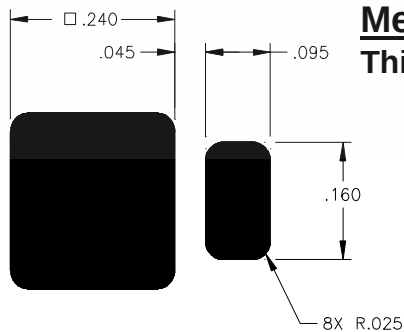
- Tungsten schottky barrier
- Oxide passivated structure for very low leakage currents
- Guard ring protection for increased reverse energy capability
- Epitaxial structure minimizes forward voltage drop
- Hermetically sealed, low profile ceramic surface mount power package
- Low package inductance
- Very low thermal resistance
- Available as standard polarity (strap-to-anode, 1N6816) and reverse polarity (strap-to-cathode: 1N6816R)

## Maximum Ratings @ 25 °C (unless otherwise specified)

| DESCRIPTION                                                                     | SYMBOL            | MAX.         | UNIT                   |
|---------------------------------------------------------------------------------|-------------------|--------------|------------------------|
| Peak Repetitive Reverse Voltage                                                 | $V_{RRM}$         | 45           | Volts                  |
| Working Peak Reverse Voltage                                                    | $V_{RWM}$         | 45           | Volts                  |
| DC Blocking Voltage                                                             | $V_R$             | 45           | Volts                  |
| Average Rectified Forward Current, $T_c \leq 145^\circ\text{C}$                 | $I_{F(ave)}$      | 25           | Amps                   |
| derating, forward current, $T_c \geq 145^\circ\text{C}$                         | $dI_F/dT$         | (3.3)        | Amps/ $^\circ\text{C}$ |
| Nonrepetitive Peak Surge Current, $t_p = 8.3$ ms, half-sinewave                 | $I_{FSM}$         | 125          | Amps                   |
| Peak Repetitive Reverse Surge Current, $t_p = 1\mu\text{s}$ , $f = 1\text{kHz}$ | $I_{RRM}$         | 2            | Amp                    |
| Junction Temperature Range                                                      | $T_j$             | -55 to +175  | $^\circ\text{C}$       |
| Storage Temperature Range                                                       | $T_{stg}$         | -55 to +175  | $^\circ\text{C}$       |
| Thermal Resistance, Junction to Case:                                           | $\theta_{JC}$     | 1.25<br>1.35 | $^\circ\text{C/W}$     |
|                                                                                 | 1N6816<br>1N6816R |              |                        |



## Mechanical Outline ThinKey™2



**MSASC25W45K (1N6816)**

**MSASC25W45KR (1N6816R)**



## Electrical Parameters

| DESCRIPTION                                             | SYMBOL            | CONDITIONS            | MIN | TYP. | MAX | UNIT |
|---------------------------------------------------------|-------------------|-----------------------|-----|------|-----|------|
| Reverse (Leakage)<br>Current                            | IR <sub>25</sub>  | VR= 45 Vdc, Tc= 25°C  |     | 5    | 300 | μA   |
|                                                         | IR <sub>125</sub> | VR= 45 Vdc, Tc= 125°C |     | 1.5  | 10  | mA   |
| Forward Voltage<br>pulse test,<br>pw= 300 μs<br>d/c≤ 2% | VF1               | IF= 5A, Tc= 25°C      |     | 540  | 600 | mV   |
|                                                         | VF2               | IF= 10A, Tc= 25°C     |     | 590  | 675 | mV   |
|                                                         | VF3               | IF= 20A, Tc= 25°C     |     | 680  | 775 | mV   |
|                                                         | VF4               | IF= 50A, Tc= 25°C     |     | 850  | -   | mV   |
|                                                         | VF5               | IF= 10A, Tc= -55°C    |     | 680  | 775 | mV   |
|                                                         | VF6               | IF= 10A, Tc= 125°C    |     | 500  | -   | mV   |
|                                                         |                   |                       |     |      |     |      |
| Junction Capacitance                                    | Cj1               | VR= 10 Vdc            |     | 525  | 600 | pF   |
|                                                         | Cj2               | VR= 5 Vdc             |     | 725  |     | pF   |
| Breakdown Voltage                                       | BVR               | IR= 1 mA, Tc= 25°C    |     | 55   |     | V    |
|                                                         |                   | IR= 1 mA, Tc= -55°C   | 45  | 50   |     | V    |