

# POWER SCHOTTKY RECTIFIERS

30A Av, Up to 45V

USD3030C  
USD3040C  
USD3045C

2

## FEATURES

- Economical Convenient TO-3P Package
- Insulated Mounting Hole
- Can Be Clip Mounted
- Mechanically Rugged
- Low Thermal Resistance
- Extremely Low  $V_f$

## DESCRIPTION

The USD3030C Series, in the economical, convenient TO-3P package, is specifically designed for operation in power switching circuits to frequencies in excess of 100kHz. The very low forward voltage and low recovered charge translates to extremely high efficiency making them particularly suited for low voltage switching type power supplies.

## ABSOLUTE MAXIMUM RATINGS, either leg unless noted

|  | USD3030C                          | USD3040C | USD3045C |
|--|-----------------------------------|----------|----------|
| Working Peak Inverse Voltage                                   | $V_{RWM}, V_{RRM}$ 30V            | 40V      | 45V      |
| D.C. Blocking Voltage  | $V_R$ 30V                         | 40V      | 45V      |
| Peak Repetitive Surge Voltage                                  | $V_{RSM} @ I_{RM}$ 36V            | 48V      | 54V      |
| Maximum Average D.C. Output Current                            |                                   |          |          |
| @ $T_C = 125^\circ\text{C}$ , full wave operation (see curves) | $I_{F(AV)}$ 30A                   |          |          |
| Non-Repetitive Sinusoidal Surge Current, 8.3ms                 | $I_{FSM}$ 400A                    |          |          |
| Peak Reverse Transient Current                                 | $I_{RM}$ 2A                       |          |          |
| Thermal Resistance Junction to Case                            | $R_{\theta J-C}$ 1.4°C/W          |          |          |
| Thermal Resistance Junction to Case                            |                                   |          |          |
| both legs together, full wave                                  | $R_{\theta J-C}$ 0.85°C/W         |          |          |
| Thermal Resistance Junction to Ambient                         |                                   |          |          |
| either leg, or both legs together                              | $R_{\theta J-A}$ 40°C/W           |          |          |
| Operating and Storage Temperature Range                        | $T_{OP}, T_{STG}$ -55°C to +150°C |          |          |

## ELECTRICAL SPECIFICATIONS

| Type     | $V_{RWM}$ | Maximum Forward Voltage ( $V_f$ ) |                           | Maximum Reverse Current ( $I_R$ ) @ $V_{RWM}$ |                           | Maximum Capacitance $C_T$ at $V_R = 5.0V$ | Voltage Rate of Change (dv/dt) |
|----------|-----------|-----------------------------------|---------------------------|---|---------------------------|---|--------------------------------|
|          |           | $T_J = 25^\circ\text{C}$          | $T_J = 125^\circ\text{C}$ | $T_J = 25^\circ\text{C}$                      | $T_J = 125^\circ\text{C}$ |   |                                |
| USD3030C | 30V       | .61 @ 15A                         | .55 @ 15A                 | 20mA  | 50mA                      | 2000pF                                    | 1000V/ $\mu\text{s}$           |
| USD3040C | 40V       | 75 @ 30A                          | 71 @ 30A                  |   |                           |   |                                |
| USD3045C | 45V       |                                   |                           |   |                           |   |                                |

## MECHANICAL SPECIFICATIONS

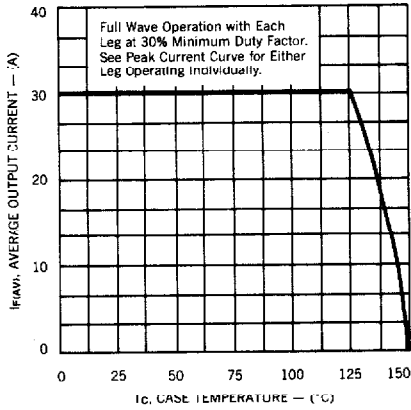
197 NOM.  
C

PIN 1 PIN 3  
PIN 2 & TAB

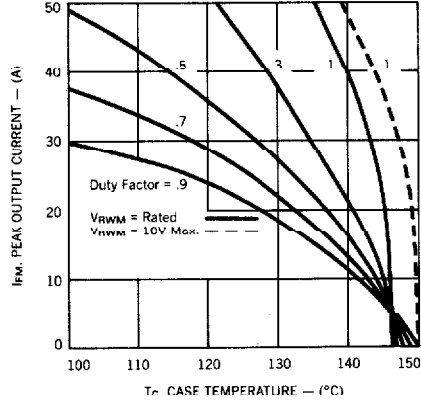
| DIM. | INCHES |      |
|------|--------|------|
|      | MIN.   | MAX. |
| A    | .620   | .640 |
| B    | .825   | .845 |
| C    | .060   | .080 |
| D    | .780   | .800 |
| E    | .087   | .102 |
| F    | .019   | .029 |
| G    | .150   | .170 |
| H    | .212   | .222 |
| J    | .140   | .144 |
| K    | .042   | .052 |
| L    | .074   | .084 |
| M    | .113   | .123 |
| N    | .430   | Nom. |

TO-3P

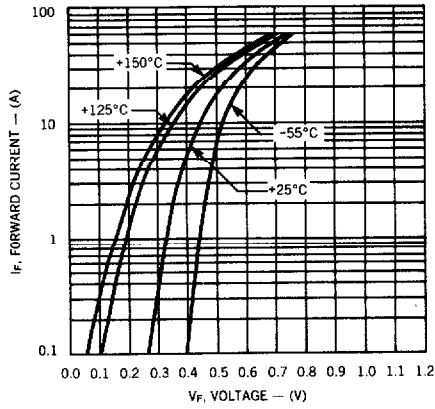
**Average Output Current vs Case Temperature**



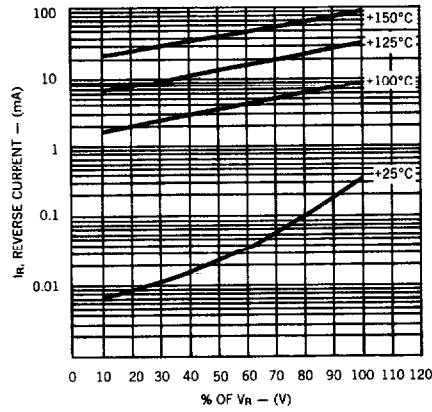
**Peak Output Current vs Case Temperature (Either Leg)**



**Typical Forward Current vs Forward Voltage**



**Typical Reverse Current vs Voltage**



**Thermal Impedance vs Pulse Width (Each Leg)**

