

# International IOR Rectifier

## HF70D120ACE

Hexfred Die in Wafer Form

### Features

- GEN3 Hexfred Technology
- Low  $V_F$
- Low  $I_{RR}$
- Low  $t_{RR}$
- Soft Reverse Recovery

### Benefits

- Benchmark Efficiency for Motor Control Applications
- Rugged Transient Performance
- Low EMI
- Excellent Current Sharing in Parallel Operation

1200V  
 $I_{F(nom)} = 75A$   
 $V_{F(typ)} = 1.75V @ I_{F(nom)} @ 25^\circ C$   
 Motor Control Antiparallel Diode  
 125mm Wafer

### Electrical Characteristics (Wafer Form)

| Parameter | Description               | Guaranteed (min, max) | Test Conditions                       |
|-----------|---------------------------|-----------------------|---------------------------------------|
| $V_F$     | Forward Voltage Drop      | 0.99V min, 1.31V max  | $I_F = 10A$ , $T_J = 25^\circ C$      |
| $BV_R$    | Reverse Breakdown Voltage | 1200V min             | $T_J = 25^\circ C$ , $I_R = 500\mu A$ |
| $I_{RM}$  | Reverse Leakage Current   | 30 $\mu A$ max        | $T_J = 25^\circ C$ , $V_R = 1200V$    |

### Mechanical Data

|                                              |                                                                                         |
|----------------------------------------------|-----------------------------------------------------------------------------------------|
| Nominal Backmetal Composition, (Thickness)   | Cr- Ni - Ag, (1kA - 4kA - 6kA)                                                          |
| Nominal Front Metal Composition, (Thickness) | 99% Al/1% Si, (3 $\mu m$ )                                                              |
| Dimensions                                   | 0.234" x 0.443"                                                                         |
| Wafer Diameter                               | 125mm, with std. < 100 > flat                                                           |
| Wafer Thickness, Tolerance                   | 310 $\mu m$ , +/-15 $\mu m$                                                             |
| Relevant Die Mechanical Dwg. Number          | 01-5364                                                                                 |
| Minimum Street Width                         | 100 $\mu m$                                                                             |
| Reject Ink Dot Size                          | 0.25mm diameter minimum                                                                 |
| Ink Dot Location                             | Consistent throughout same wafer lot                                                    |
| Recommended Storage Environment              | Store in original container, in dessicated nitrogen, with no contamination              |
| Recommended Die Attach Conditions            | For optimum electrical results, die attach temperature should not exceed 300 $^\circ C$ |

### Die Outline

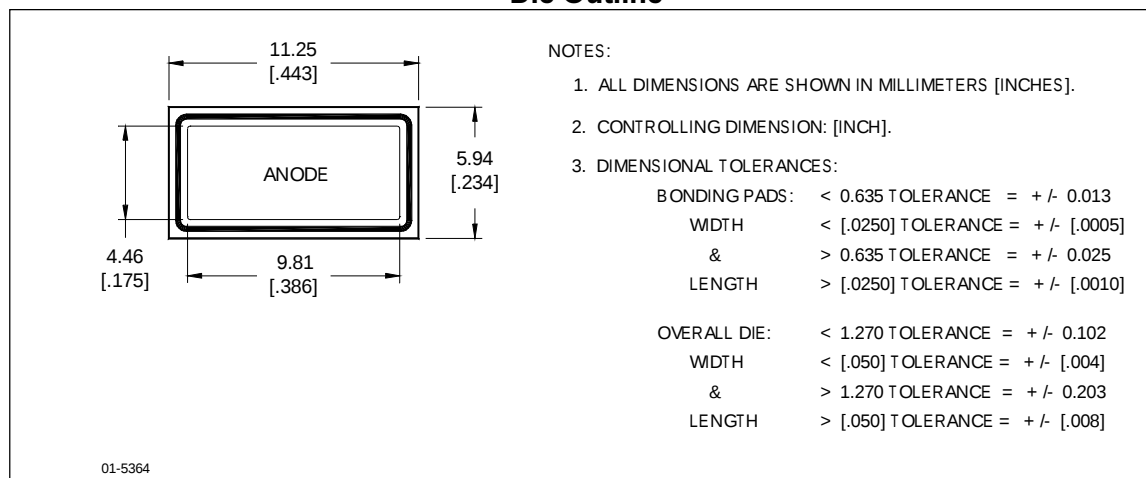


Fig.1 - Typical Diode Recovery

$V_{CC}=600V$ ;  $R_g=5\Omega$ ;  $T_J=125^\circ C$ ;  
 $L=200\mu H$ ; Driver=IRGC75B120KB

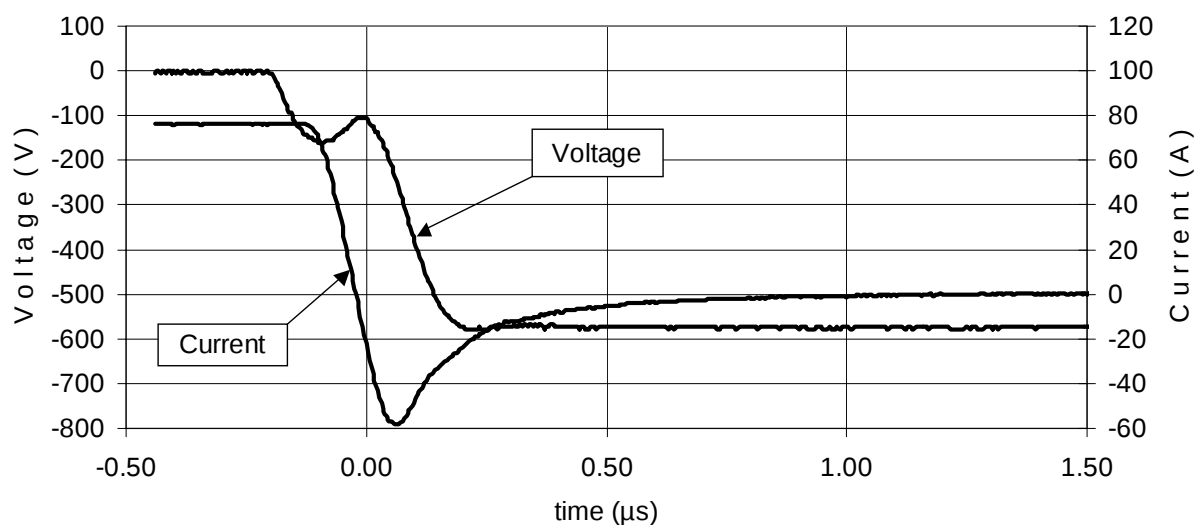


Fig.2 - Typical Diode Forward Characteristic  
 $t_p=300\mu s$

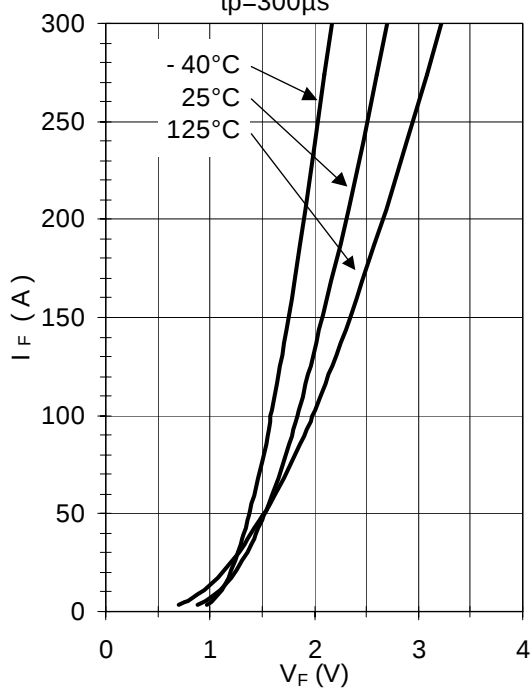


Fig. 3 - Diode Recovery Circuit

