# DACO SEMICONDUCTOR CO., LTD.

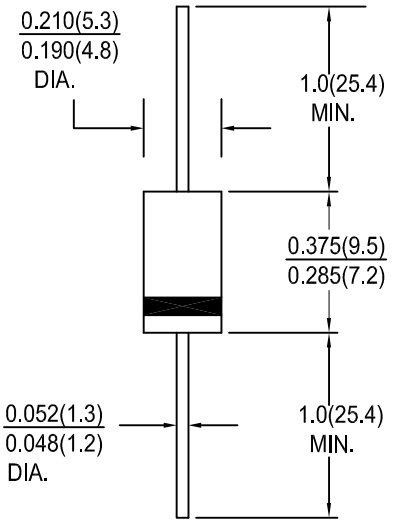
**FR301 THRU FR307**

# FAST RECOVERY SILICON RECTIFIERS

## FEATURES:

- Low cost
- High surge current capability
- Low leakage current
- Low forward voltage drop
- Diffused junction

DO-201AD




Dimensions in inches and (millimeters)

## MECHANICAL DATA

Case : Molded plastic use UL 94V-0 recognized flame retardant epoxy

Terminals : Axial leads, solderable per MIL-STD-202 Method 208 guaranteed

Polarity : Color band on body denotes cathode

Mounting Position : Any

Weight : 1.1 grams, 0.039 ounce

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25° C ambient temp. unless otherwise specified.

Single phase, half sine wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20 %.

| Characteristic | Symbol | FR 301 | FR 302 | FR 303 | FR 304 | FR 305 | FR 306 | FR 307 | Units |
|---|---|---|---|---|---|---|---|---|---|
| Maximum recurrent peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | Volts |
| Maximum RMS voltage | $V_{RMS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | Volts |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | Volts |
| Maximum average forward rectified current at Ta=55° C | $I_O$ | 3.0 | | | | | | | Amps |
| Peak forward surge current ,8.3ms single half sine-wave superimposed on rated load(JEDEC Method) | $I_{FSM}$ | 150.0 | | | | | | | Amps |
| Maximum instantaneous forward voltage drop at 3.0 A | $V_F$ | 1.30 | | | | | | | Volts |
| Maximum DC reverse current at rated DC blocking voltage Ta=25° C<br>Ta=55° C | $I_R$ | 5.0<br>30.0 | | | | | | | μA |
| Typical reverse recovery time (note 1) | trr | 150 | 150 | 150 | 150 | 250 | 500 | 500 | nS |
| Typical junction capacitance (note 2) | $C_j$ | 60 | | | | | | | pF |
| Operating junction and storage temperature range | $T_j, T_{stg}$ | -65 to +125 | | | -65 to +150 | | | | ° C |

NOTES:1. Reverse recovery test condition; $I_F$=0.5A, $I_R$=1.0A, $I_{RR}$=0.25A

2. Measured at 1MHz and Applied reverse voltage of 4.0V DC

## RATINGS AND CHARACTERISTIC CURVES

FIG.1-DERATING CURVE FOR OUTPUT RECTIFIER CURRENT

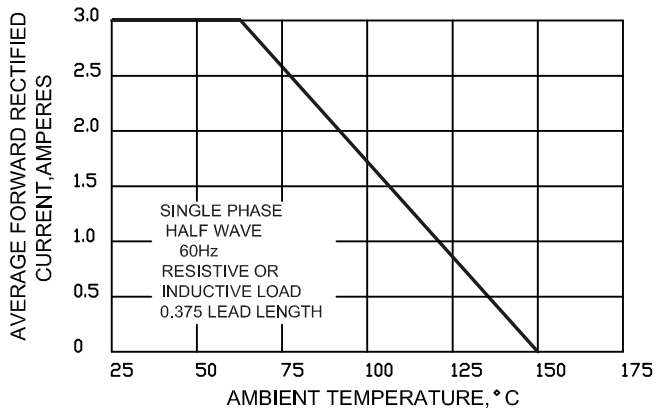



FIG.2-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

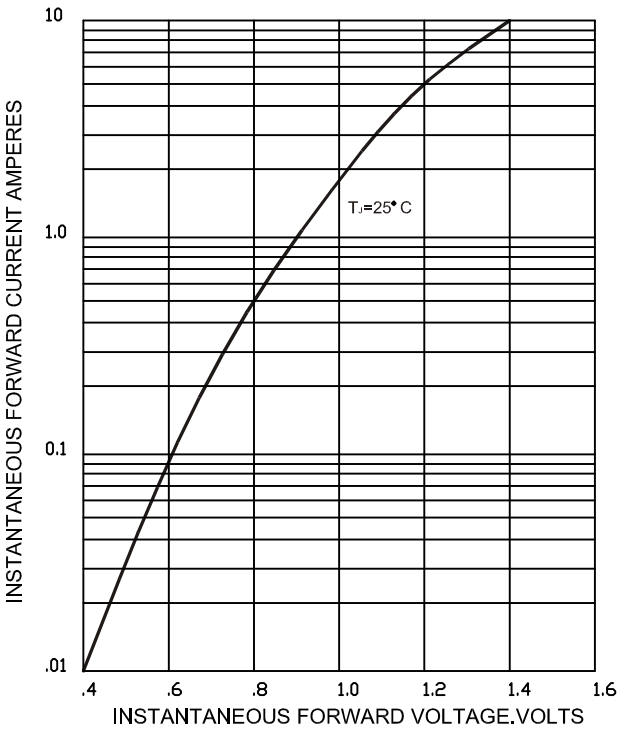



FIG.3-TYPICAL JUNCTION CAPACITANCE

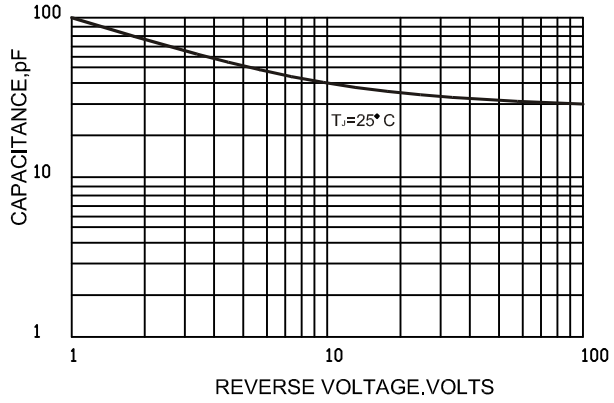



FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

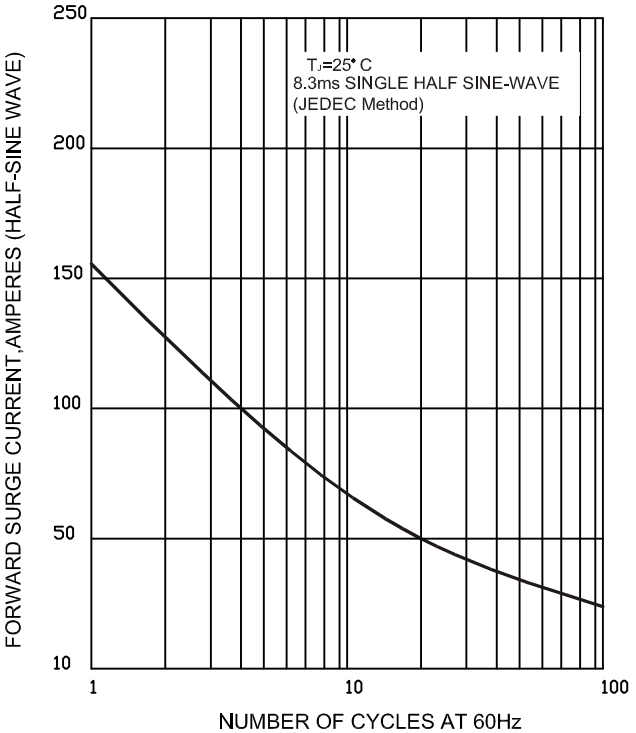
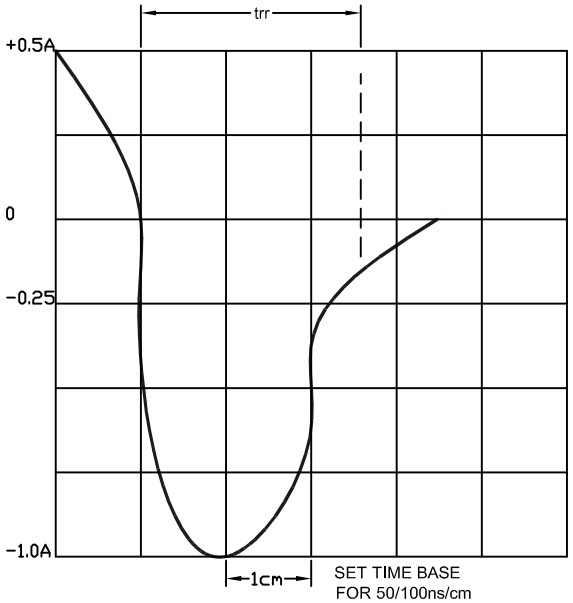



FIG.5-REVERSE RECOVERY TIME CHARACTERISTICS



# Disclaimer

DACO Semiconductor reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein.

DACO Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does DACO Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages.

Purchasers is responsible for its products and applications using DACO Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by DACO Semiconductor. “Typical” parameters which may be provided in DACO Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals” must be validated for each customer application by customer’s technical experts.

DACO Semiconductor products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of DACO Semiconductor’s product can reasonably be expected to result in personal injury, death or severe property or environmental damage. DACO Semiconductor accept no liability for inclusion and/or use of DACO Semiconductor’s products in such equipment or applications and therefore such inclusion and/or use is at the customer’s own risk.

Purchasers buy or use DACO Semiconductor products for any such unintended or unauthorized application, Purchasers shall indemnify and hold DACO Semiconductor and its suppliers and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that DACO Semiconductor was negligent regarding the design or manufacture of the part.