

# PFS

## FAST RECOVERY RECTIFIER

**ES1F---ES1A**

**VOLTAGE RANGE: 1500 --- 600 V**  
**CURRENT: 0.7 A**

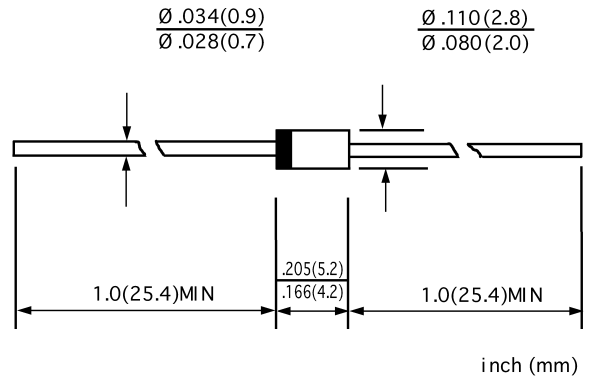
**FEATURES**

- ◇ Low cost
- ◇ Diffused junction
- ◇ Low leakage
- ◇ Low forward voltage drop
- ◇ High current capability
- ◇ Easily cleaned with Freon,Alcohol,Isopropanol and similar solvents
- ◇ The plastic material carries U/L recognition 94V-0

**MECHANICAL DATA**

- ◇ Case:JEDEC DO-41,molded plastic
- ◇ Terminals: Axial lead ,solderable per MIL- STD-750,Method 2026
- ◇ Polarity: Color band denotes cathode
- ◇ Weight: 0.012 ounces,0.34 grams
- ◇ Mounting position: Any

**DO - 41**



**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase,half wave,60 Hz,resistive or inductive load. For capacitive load,derate by 20%.

|   |                 | ES1F         | ES1Z | ES1 | ES1A | UNITS        |
|---|-----------------|--------------|------|-----|------|--------------|
| Maximum recurrent peak reverse voltage  | $V_{RRM}$       | 1500         | 200  | 400 | 600  | V            |
| Maximum RMS voltage   | $V_{RMS}$       | 1050         | 140  | 280 | 420  | V            |
| Maximum DC blocking voltage   | $V_{DC}$        | 1500         | 200  | 400 | 600  | V            |
| Maximum average forward rectified current<br>9.5mm lead length, @ $T_A=75^\circ C$                          | $I_{F(AV)}$     | 0.5          | 0.7  |     |      | A            |
| Peak forward surge current<br>8.3ms single half-sine-wave<br>superimposed on rated load @ $T_J=125^\circ C$ | $I_{FSM}$       | 20.0         | 30.0 |     |      | A            |
| Maximum instantaneous forward voltage<br>@ 0.5/0.7A   | $V_F$           | 2.0          | 2.5  |     |      | V            |
| Maximum reverse current @ $T_A=25^\circ C$<br>at rated DC blocking voltage @ $T_A=100^\circ C$              | $I_R$           | 10.0         |      | 5.0 |      | $\mu A$      |
|   |                 | 100.0        |      |     |      |              |
| Maximum reverse recovery time (Note1)   | $t_{rr}$        | 350          |      |     |      | ns           |
| Typical junction capacitance (Note2)  | $C_J$           | 15           |      |     |      | pF           |
| Typical thermal resistance (Note3)  | $R_{\theta JA}$ | 50           |      |     |      | $^\circ C/W$ |
| Operating junction temperature range  | $T_J$           | -55----+150  |      |     |      | $^\circ C$   |
| Storage temperature range   | $T_{STG}$       | -55---- +150 |      |     |      | $^\circ C$   |

NOTE:1. Measured with  $I_F=0.5A$ ,  $I_R=1A$ ,  $I_{rr}=0.25A$ .

2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

3. Thermal resistance from junction to ambient.

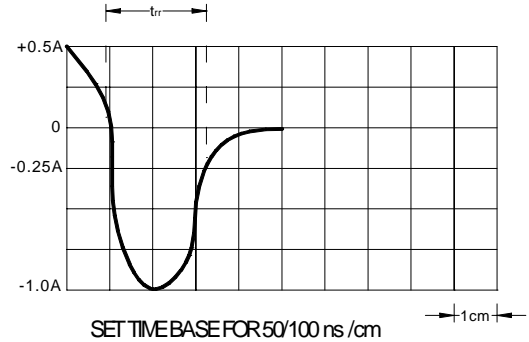
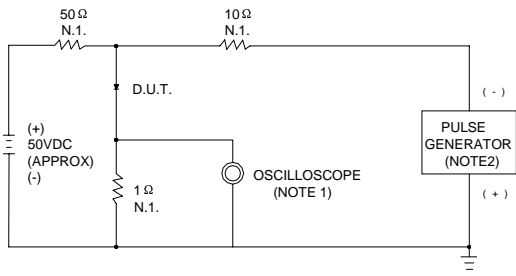
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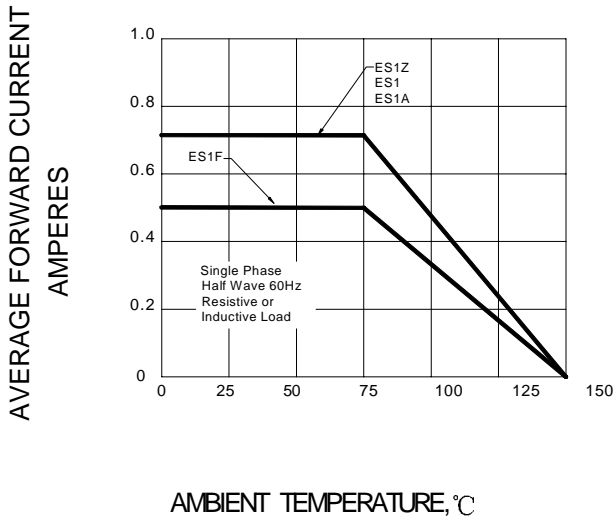
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**FIG.1 – REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM**

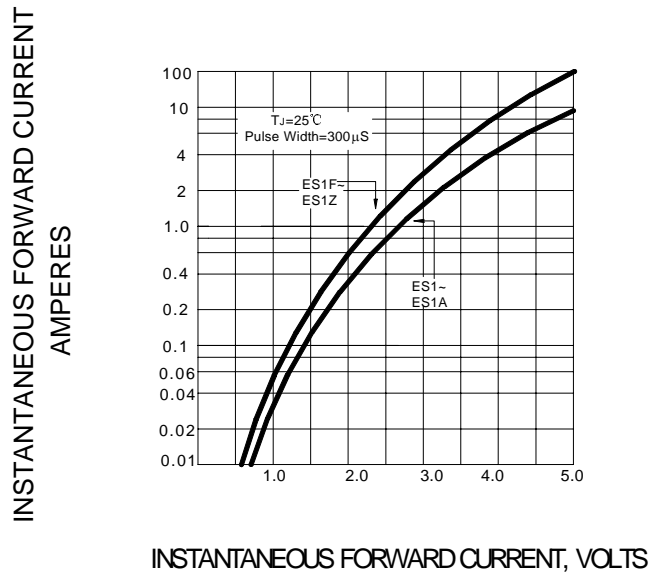


NOTES: 1. RISE TIME= 7ns MAX. INPUT IMPEDANCE= 1MΩ. 22PF  
2. RISE TIME= 10ns MAX. SOURCE IMPEDANCE= 50Ω

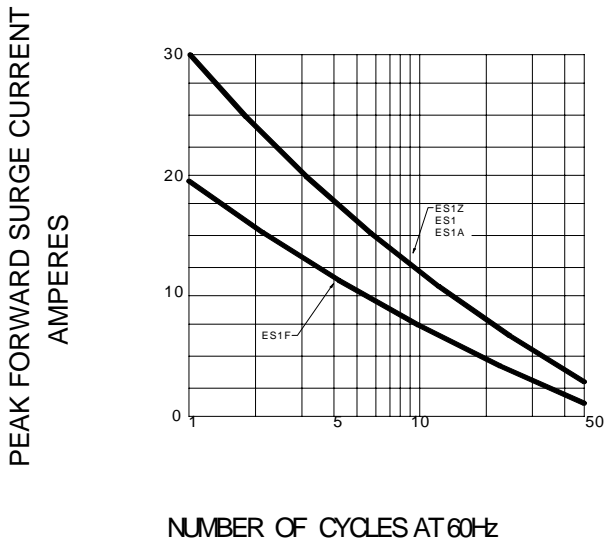
**FIG.2 – FORWARD DERATING CURVE**



**FIG.3 – TYPICAL FORWARD CHARACTERISTIC**



**FIG.4- PEAK FORWARD SURGE CURRENT**



**FIG.5- TYPICAL JUNCTION CAPACITANCE**

