

**Rectifier diodes  
fast, soft-recovery**

**BY329F, BY329X series**

**FEATURES**

- Low forward volt drop
- Fast switching
- Soft recovery characteristic
- High thermal cycling performance
- Isolated mounting tab

**SYMBOL**



**QUICK REFERENCE DATA**

|  |
|--|
| $V_R = 800\text{ V} / 1000\text{ V} / 1200\text{ V}$ |
| $I_{F(AV)} = 8\text{ A}$                             |
| $I_{FSM} \leq 65\text{ A}$                           |
| $t_{rr} \leq 145\text{ ns}$                          |

**GENERAL DESCRIPTION**

Glass-passivated double diffused rectifier diodes featuring low forward voltage drop, fast reverse recovery and soft recovery characteristic. The devices are intended for use in TV receivers, monitors and switched mode power supplies.

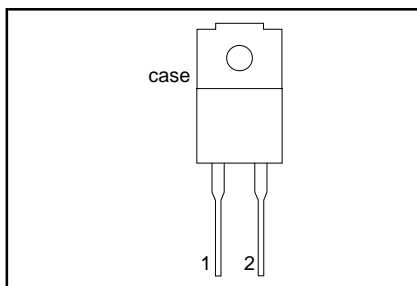
The BY329F series is supplied in the conventional leaded SOD100 package.

The BY329X series is supplied in the conventional leaded SOD113 package.

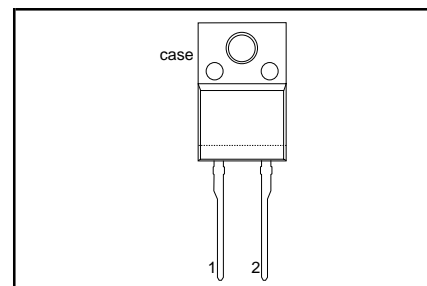
**PINNING**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | cathode     |
| 2   | anode       |
| tab | isolated    |

**SOD100**



**SOD113**



**LIMITING VALUES**

Limiting values in accordance with the Absolute Maximum System (IEC 134).

| SYMBOL       | PARAMETER                            | CONDITIONS  | MIN. | MAX.               |                      |                      | UNIT             |
|--------------|--------------------------------------|---|------|--------------------|----------------------|----------------------|------------------|
| $V_{RSM}$    | Peak non-repetitive reverse voltage  | <b>BY329F / BY329X</b>  | -    | <b>-800</b><br>800 | <b>-1000</b><br>1000 | <b>-1200</b><br>1200 | V                |
| $V_{RRM}$    | Peak repetitive reverse voltage      |   | -    | 800                | 1000                 | 1200                 | V                |
| $V_{RWM}$    | Crest working reverse voltage        |   | -    | 600                | 800                  | 1000                 | V                |
| $I_{F(AV)}$  | Average forward current <sup>1</sup> | square wave; $\delta = 0.5$ ;<br>$T_{hs} \leq 83\text{ }^\circ\text{C}$   | -    | 8                  |                      |                      | A                |
|              |                                      | sinusoidal; $a = 1.57$ ;<br>$T_{hs} \leq 90\text{ }^\circ\text{C}$  | -    | 7                  |                      |                      | A                |
| $I_{F(RMS)}$ | RMS forward current                  |   | -    | 11                 |                      |                      | A                |
| $I_{FRM}$    | Peak repetitive forward current      | $t = 25\text{ }\mu\text{s}$ ; $\delta = 0.5$ ;<br>$T_{hs} \leq 83\text{ }^\circ\text{C}$                                  | -    | 16                 |                      |                      | A                |
| $I_{FSM}$    | Peak non-repetitive forward current. | $t = 10\text{ ms}$<br>$t = 8.3\text{ ms}$<br>sinusoidal; $T_j = 150\text{ }^\circ\text{C}$ prior to surge; with reapplied | -    | 65                 |                      |                      | A                |
|              |                                      | $V_{RWM(max)}$<br>$t = 10\text{ ms}$  | -    | 71                 |                      |                      | A                |
| $I^2t$       | $I^2t$ for fusing                    |   | -    | 28                 |                      |                      | A <sup>2</sup> s |
| $T_{stg}$    | Storage temperature                  |   | -40  | 150                |                      |                      | $^\circ\text{C}$ |
| $T_j$        | Operating junction temperature       |   | -    | 150                |                      |                      | $^\circ\text{C}$ |

1. Neglecting switching and reverse current losses.

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**ISOLATION LIMITING VALUE & CHARACTERISTIC**
 $T_{hs} = 25\text{ °C}$  unless otherwise specified

| SYMBOL     | PARAMETER   | CONDITIONS  | MIN. | TYP. | MAX. | UNIT |
|------------|---|---|------|------|------|------|
| $V_{isol}$ | Peak isolation voltage from both terminals to external heatsink   | SOD100 package; R.H. $\leq$ 65%; clean and dustfree   | -    | -    | 1500 | V    |
| $V_{isol}$ | R.M.S. isolation voltage from both terminals to external heatsink | SOD113 package; $f = 50\text{-}60\text{ Hz}$ ; sinusoidal waveform; R.H. $\leq$ 65%; clean and dustfree | -    | -    | 2500 | V    |
| $C_{isol}$ | Capacitance from pin 1 to external heatsink                       | $f = 1\text{ MHz}$  | -    | 10   | -    | pF   |

**THERMAL RESISTANCES**

| SYMBOL                | PARAMETER                               | CONDITIONS                             | MIN. | TYP. | MAX. | UNIT |
|-----------------------|---|--|------|------|------|------|
| $R_{th\ j\text{-}hs}$ | Thermal resistance junction to heatsink | with heatsink compound                 | -    | -    | 4.8  | K/W  |
| $R_{th\ j\text{-}a}$  | Thermal resistance junction to ambient  | without heatsink compound in free air. | -    | 55   | 5.9  | K/W  |

**STATIC CHARACTERISTICS**
 $T_j = 25\text{ °C}$  unless otherwise stated

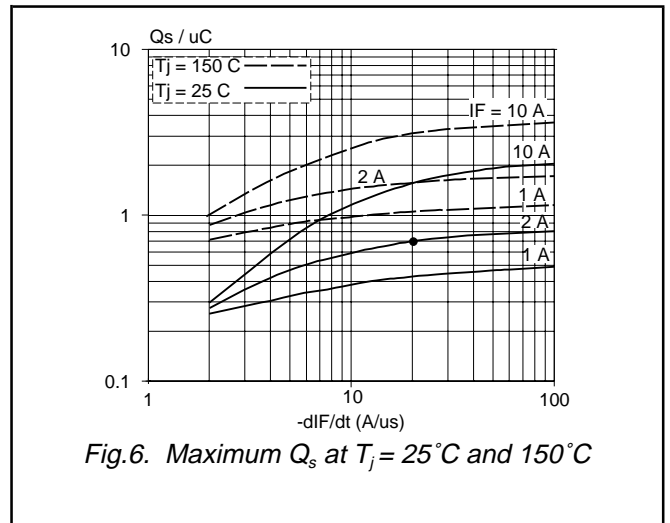
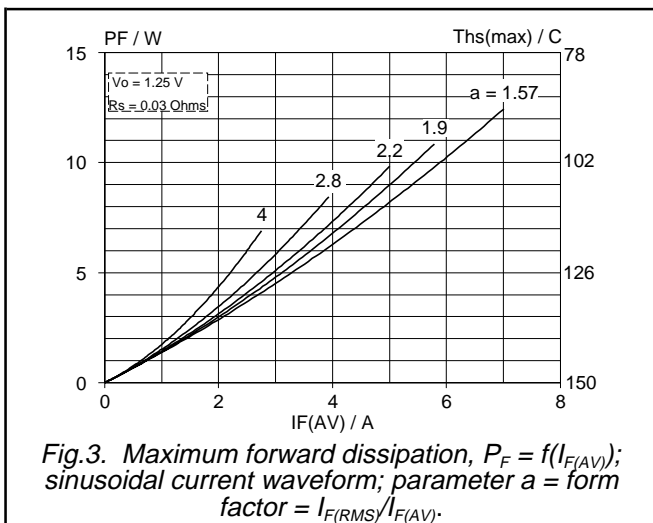
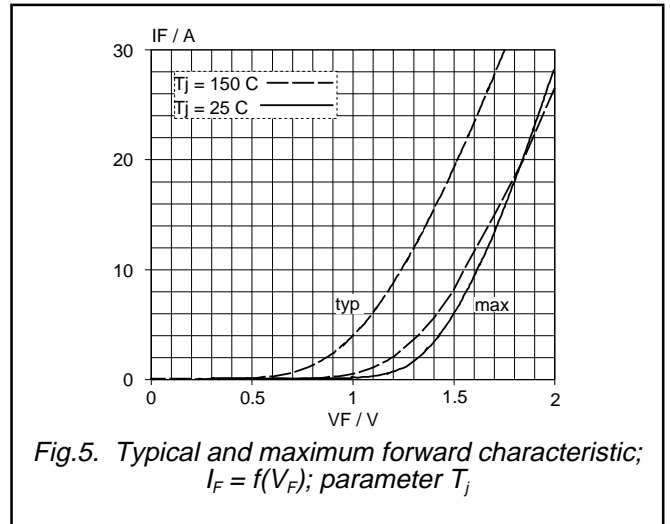
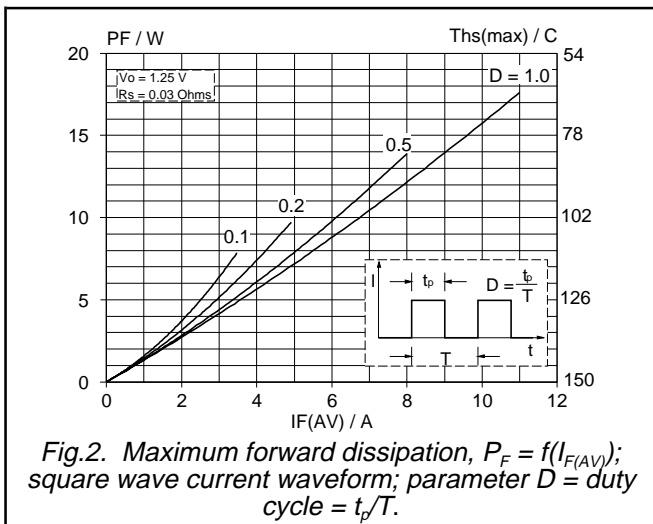
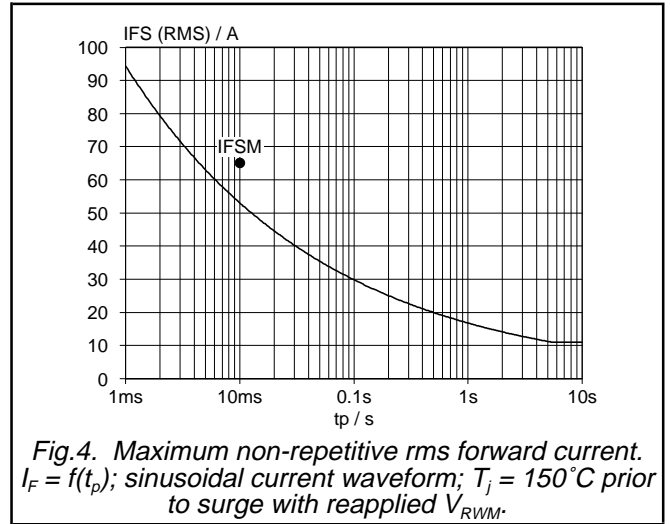
| SYMBOL | PARAMETER       | CONDITIONS                              | MIN. | TYP. | MAX. | UNIT |
|--------|-----------------|---|------|------|------|------|
| $V_F$  | Forward voltage | $I_F = 20\text{ A}$                     | -    | 1.5  | 1.85 | V    |
| $I_R$  | Reverse current | $V_R = V_{RWM}$ ; $T_j = 125\text{ °C}$ | -    | 0.1  | 1.0  | mA   |

**DYNAMIC CHARACTERISTICS**
 $T_j = 25\text{ °C}$  unless otherwise stated

| SYMBOL    | PARAMETER                                     | CONDITIONS   | MIN. | TYP. | MAX. | UNIT                   |
|-----------|---|--|------|------|------|------------------------|
| $t_{rr}$  | Reverse recovery time                         | $I_F = 1\text{ A}$ ; $V_R \geq 30\text{ V}$ ; $-di_F/dt = 50\text{ A}/\mu\text{s}$ | -    | 125  | 145  | ns                     |
| $Q_S$     | Reverse recovery charge                       | $I_F = 2\text{ A}$ ; $V_R \geq 30\text{ V}$ ; $-di_F/dt = 20\text{ A}/\mu\text{s}$ | -    | 0.5  | 0.7  | $\mu\text{C}$          |
| $di_R/dt$ | Maximum slope of the reverse recovery current | $I_F = 2\text{ A}$ ; $-di_F/dt = 20\text{ A}/\mu\text{s}$                          | -    | 50   | 60   | $\text{A}/\mu\text{s}$ |

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Fig.7. Maximum  $t_{rr}$  measured to 25% of  $I_{rm}$ ;  $T_j = 25^\circ\text{C}$  and  $150^\circ\text{C}$

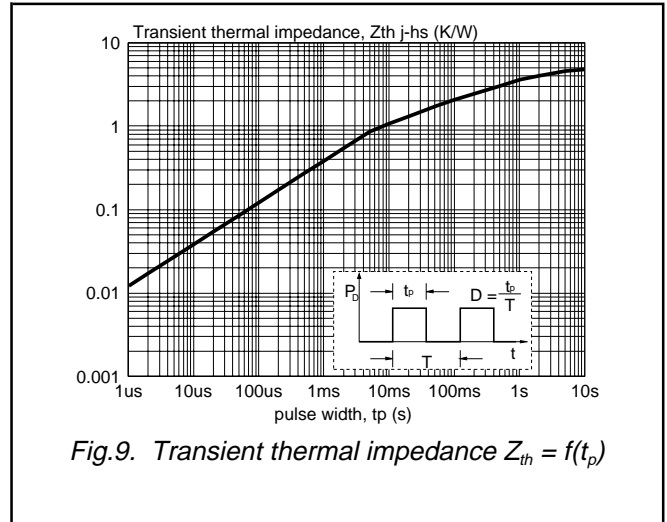


Fig.9. Transient thermal impedance  $Z_{th} = f(t_p)$

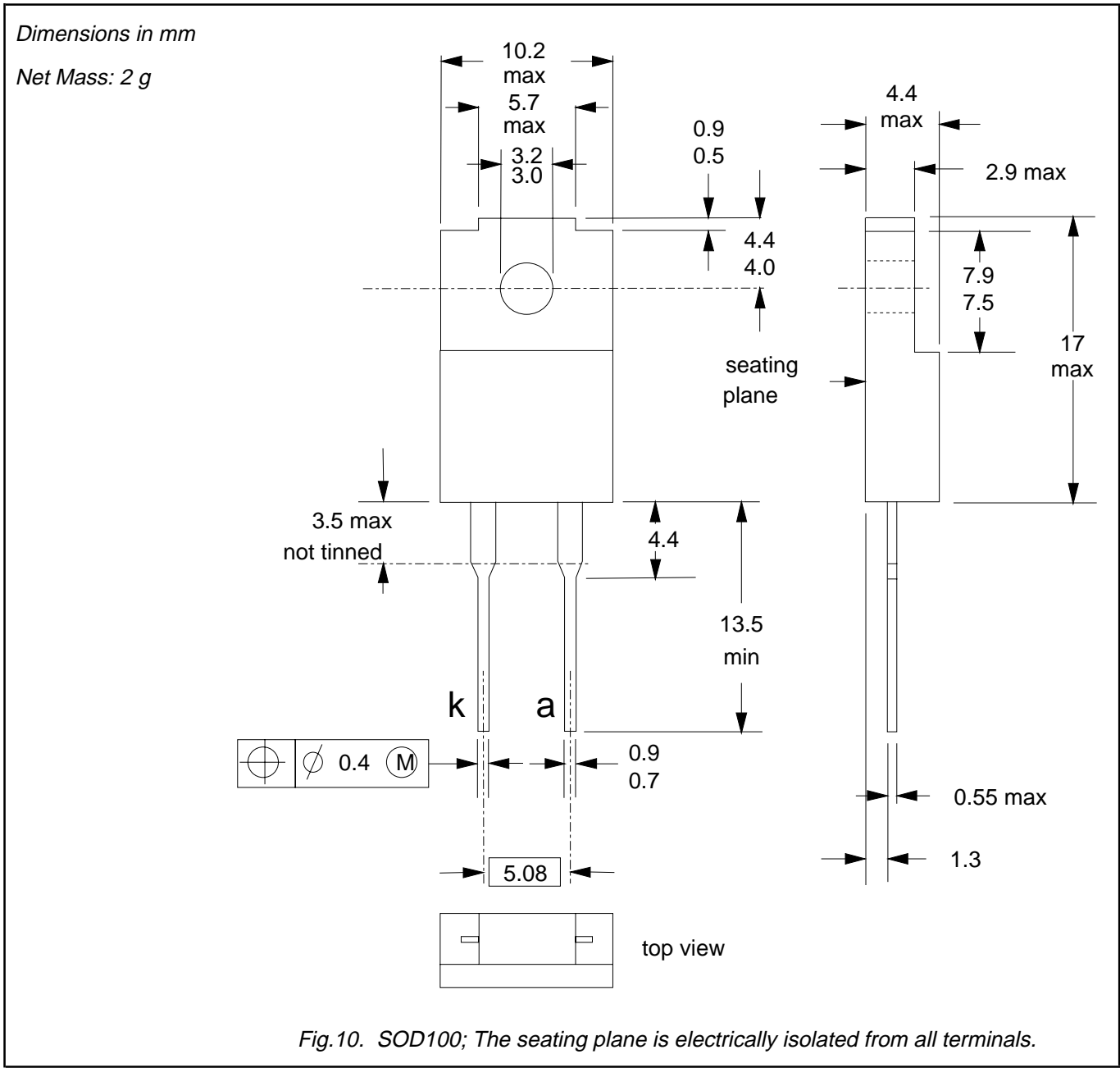


Fig.8. Typical junction capacitance  $C_d$  at  $f = 1\text{ MHz}$ ;  $T_j = 25^\circ\text{C}$

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**MECHANICAL DATA**



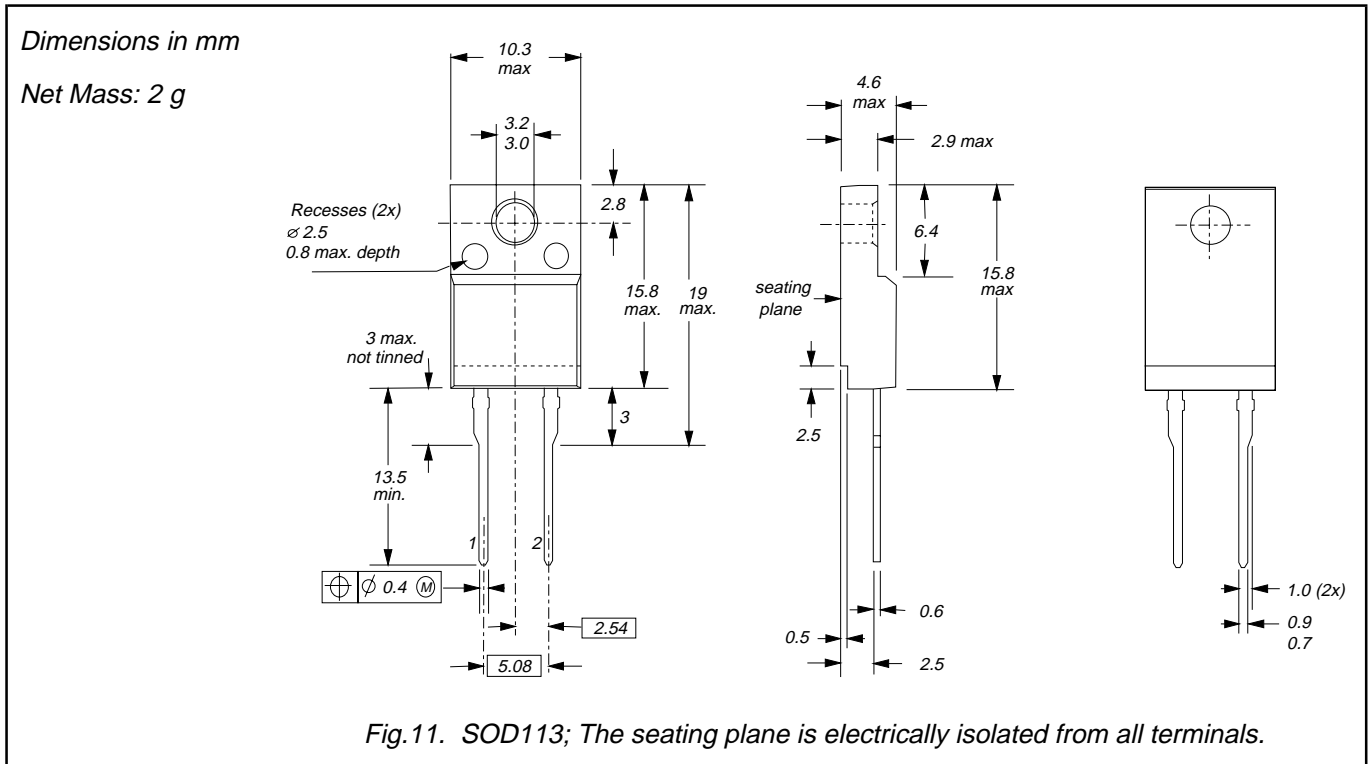
**Notes**

1. Refer to mounting instructions for F-pack envelopes.
2. Epoxy meets UL94 V0 at 1/8".

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**MECHANICAL DATA**



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## DEFINITIONS

|  |   |
|--|---|
| <b>Data sheet status</b>   |   |
| Objective specification  | This data sheet contains target or goal specifications for product development.       |
| Preliminary specification  | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification  | This data sheet contains final product specifications.                                |
| <b>Limiting values</b>   |   |
| Limiting values are given in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of this specification is not implied. Exposure to limiting values for extended periods may affect device reliability. |   |
| <b>Application information</b>   |   |
| Where application information is given, it is advisory and does not form part of the specification.  |   |
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