Automotive-grade
Protection devices & rectifiers

AEC-Q compliant
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Automotive-grade protection devices

AUTOMOTIVE DATALINE ESD PROTECTION

Unidirectional clamping arrays

<table>
<thead>
<tr>
<th>Part number</th>
<th>Number of protected lines</th>
<th>ISO 7637-2 pulse compliance</th>
<th>ISO 10605 contact/air</th>
<th>Stand-off voltage ($V_{RM}$)</th>
<th>Leakage current ($I_{RM}$) @ $V_{RM}$</th>
<th>Breakdown voltage ($V_{BR}$ @ $I_{R}$)</th>
<th>Capacitance ($C_{line}$) @ 0 V bias</th>
<th>Junction temperature ($T_j$)</th>
<th>Package</th>
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(*) New products, available in Q4-2013

Rail-to-rail protection

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<th>Forward voltage ($V_f$) @ 50 mA</th>
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<th>Leakage current ($I_{leak}$) @ $V_{leak}$</th>
<th>Breakdown voltage ($V_{br}$) @ $I_{br}$</th>
<th>Capacitance ($C_{line}$)</th>
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(*) New products, available in Q4-2013

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<th>Breakdown voltage ($V_{br}$) @ $I_{br}$</th>
<th>Clamping voltage ($V_{cl}$) @ $I_{cl}$</th>
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(*) New products, available in Q4-2013
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<th>Peak pulse power (P_{pp}) 10/1000 µs @ 150 °C</th>
<th>Peak pulse power (P_{pp}) 8/20 µs</th>
<th>Stand-off voltage (V_{rms})</th>
<th>Leakage current (I_{rms}) @ V_{rms}</th>
<th>Breakdown voltage (V_{BR}) @ I_{rms}</th>
<th>Clamping voltage (V_{CL}) @ I_{PP} 10/1000 µs</th>
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### Automotive-grade 600 W Transil™ (TVS), ISO 7637-2 compliant (pulses 1, 2, 3a, 3b)

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<th>Peak pulse power (P&lt;sub&gt;PP&lt;/sub&gt;) 8/20 µs (W)</th>
<th>Stand-off voltage (V&lt;sub&gt;RM&lt;/sub&gt;) (V)</th>
<th>Leakage current (I&lt;sub&gt;RM&lt;/sub&gt;) @ V&lt;sub&gt;RM&lt;/sub&gt; (min (µA), typ (µA), max (µA))</th>
<th>Breakdown voltage (V&lt;sub&gt;BR&lt;/sub&gt;) @ I&lt;sub&gt;R&lt;/sub&gt; (max (V))</th>
<th>Junction temperature (T&lt;sub&gt;j&lt;/sub&gt;) (°C)</th>
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### SM6TY series

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<th>Peak pulse power (P&lt;sub&gt;PP&lt;/sub&gt;) 8/20 µs (W)</th>
<th>Stand-off voltage (V&lt;sub&gt;RM&lt;/sub&gt;) (V)</th>
<th>Leakage current (I&lt;sub&gt;RM&lt;/sub&gt;) @ V&lt;sub&gt;RM&lt;/sub&gt; (min (µA), typ (µA), max (µA))</th>
<th>Breakdown voltage (V&lt;sub&gt;BR&lt;/sub&gt;) @ I&lt;sub&gt;R&lt;/sub&gt; (max (V))</th>
<th>Junction temperature (T&lt;sub&gt;j&lt;/sub&gt;) (°C)</th>
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Automotive-grade 600 W Transil™ (TVS), ISO 7637-2 compliant (pulses 1, 2, 3a, 3b)

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<th>Leakage current ( (I_n) ) @ ( V_{RM} )</th>
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<th>Clamping voltage ( (V_{CL}) ) @ ( P_{PP} ) 10/1000 µs</th>
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Automotive-grade 1500 W Transil™ (TVS), ISO 7637-2 compliant (pulses 1, 2, 3a, 3b)

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<th>Stand-off voltage ($V_{RM}$) (V)</th>
<th>Leakage current ($I_{RM}$) @ $V_{RM}$ (mA)</th>
<th>Breakdown voltage ($V_{BR}$) @ $I_{R}$ (V)</th>
<th>Clamping voltage ($V_{CL}$) @ $I_{PP}$ 10/1000 µs (V)</th>
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### Automotive-grade 3000 W Transil™ (TVS), ISO 7637-2 compliant (pulses 1, 2, 3a, 3b)

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<th>Stand-off voltage (V&lt;sub&gt;RM&lt;/sub&gt;)</th>
<th>Leakage current (I&lt;sub&gt;RM&lt;/sub&gt;) @ V&lt;sub&gt;RM&lt;/sub&gt;</th>
<th>Breakdown voltage (V&lt;sub&gt;BR&lt;/sub&gt;) @ I&lt;sub&gt;n&lt;/sub&gt;</th>
<th>Clamping voltage (V&lt;sub&gt;CL&lt;/sub&gt;) @ I&lt;sub&gt;PP&lt;/sub&gt; 10/1000 µs</th>
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## Automotive-grade Schottky Diodes

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<th>Average rectified current (I&lt;sub&gt;A&lt;/sub&gt;)</th>
<th>Forward voltage (V&lt;sub&gt;F&lt;/sub&gt;)</th>
<th>V&lt;sub&gt;F&lt;/sub&gt; measure condition (@ I&lt;sub&gt;F&lt;/sub&gt;)</th>
<th>Reverse current (I&lt;sub&gt;R&lt;/sub&gt;)</th>
<th>Non-repetitive peak forward surge current (I&lt;sub&gt;FSM&lt;/sub&gt;)</th>
<th>Junction temperature (T&lt;sub&gt;jmax&lt;/sub&gt;)</th>
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## Automotive-Grade Schottky Diodes

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<th>Average rectified current ($I_o$) max (A)</th>
<th>Forward voltage ($V_F$) max (V)</th>
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<th>Reverse current ($I_R$) max (mA)</th>
<th>Non-repetitive peak forward surge current ($I_{FSM}$) max (A)</th>
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<td>0.025</td>
<td>65</td>
<td>300</td>
<td>175</td>
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<tr>
<td><strong>1000 V</strong></td>
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<td>D²PAK</td>
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<td>1000</td>
<td>8</td>
<td>2</td>
<td>8</td>
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<td>85</td>
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<td>TO-220AC</td>
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<td>2</td>
<td>12</td>
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<td>80</td>
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<td>D²PAK, DO-247</td>
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<td>100</td>
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<td>DO-247</td>
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<tr>
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<td>D²PAK</td>
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<td>1200</td>
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<td>75</td>
<td>200</td>
<td>175</td>
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</table>
# Automotive Grade Diode Ordering Information

## Technology
- **PS**: Power Schottky
- **TH**: Ultrafast

## Current Rating
- **For Schottky diodes (STPS)**
  - **Void**: medium $V_{th}$
  - **H**: high temperature (<120 V only)
  - **L**: low $V_{th}$ from $I_{th}/2$ to $I_{th}$ (<120 V only)

- **For ultrafast diodes (STTH)**
  - **Void**: medium $V_{th}$ and $Q_{rr}$
  - **L**: low $V_{th}$ (600 V mainly)
  - **R**: low $Q_{rr}$ recovery

  *Nota*: R trade-off mainly used for 400 V and 600 V

## Breakdown Voltage
- **STPS (power Schottky)**
  - Code: $V_{RRM} = 15$ V to 600 V
  - Code: $V_{RRM}$ divided by 100
  - 200 V to 1200 V
  - 02 to 12

- **STTH (ultrafast)**
  - Code: $V_{RRM}$ divided by 100
  - 200 V to 1200 V
  - 02 to 12

## Connection Type
- **Void**: two-lead configuration
- **C**: dual common cathode

## Series
- **ST**
- **aa**
- **bb**
- **c**
- **ddd**
- **e**
- **f**
- **g**
- **h**

## Packing Type
- **Through-hole packages**
  - **D**: TO-220AC
  - **T**: TO-220AB
  - **W**: TO-247, DO-247

## SMD packages
- **A**: SMA
- **U**: SMB
- **S**: SMC
- **B**: DPAK
- **G**: D²PAK
- **K**: PowerSO-20
- **TV1**: ISOTOP (longitudinal)
- **TV2**: ISOTOP (lateral)

## Automotive Grade
- **-Y**: automotive-grade diode

## Packing Option
- **Void**: for axial: bulk
- **Void**: for SMA/B/C: tape and reel
- **Void**: for other packages: tube
- **RL**: tape and reel, for axial packages
- **TR**: tape and reel, for other packages
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By getting more from technology to get more from life, ST stands for life.augmented