Toshiba Debuts N-ch MOSFET for Lithium-ion Battery Protection Circuits

Features Low ON-Resistance and Low Capacitance in a High Radiation Performance Package

IRVINE, Calif., July 25, 2013 /PRNewswire/ -- Toshiba America Electronic Components, Inc., (TAEC)*, a committed leader that collaborates with technology companies to create breakthrough designs, today announced the launch of a semi-power N-ch MOSFET for lithium-ion battery protection circuits: the SSM3K324R. Designed for notebook PC lithium-ion battery protection circuits, the SSM3K324R brings ON-resistance and low capacitance in a large capacity, high radiation performance package.

Although they are one of the fastest-growing segments of today's battery market, lithium-ion batteries are not without disadvantages. Fragile by nature, they require protection circuits in order to operate safely. Protection circuit modules limit the peak voltage of each cell during charge and prevent the cell voltage from dropping too low on discharge - as well as prevent accidental battery explosion. Battery packs for notebook PCs are equipped with protection circuits that have the ability to detect a problem and blow an internal fuse before the packs are damaged. Toshiba's new SSM3K324R blows the fuses in the case of such an event.

A successor to Toshiba's popular SSM3K316T, the SSM3K324R uses the latest UMOSVII-H process to enable a significant reduction in gate switch charge and on-state resistance (R\textsubscript{DS(ON)}), resulting in greater power efficiency. Toshiba's new N-ch MOSFET is mounted on the SOT-23F package (2.9mm x 2.4mm), which offers superior radiation performance, and can be installed in the SOT-23 package land pattern.
<table>
<thead>
<tr>
<th>Part number</th>
<th>$V_{DSS}$ (V)</th>
<th>$V_{GSS}$ (V)</th>
<th>$I_D$ (A)</th>
<th>$R_{DS(ON)}$ max (mohms)</th>
<th>$Ciss$ (pF)</th>
<th>Process</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSM3K324R</td>
<td>30 ±12</td>
<td>4.0</td>
<td>109</td>
<td>72</td>
<td>56</td>
<td>200</td>
<td>UMOS-VII-H</td>
</tr>
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"In order to maintain battery longevity – and keep users safe - it is crucial that the correct protection circuit is selected and applied," noted Talayeh Saderi, business development manager for TAEC. "Toshiba has made this choice easy with the addition of our new and improved N-ch MOSFET."

**Pricing and Availability**

Toshiba’s new N-ch MOSFETs are available now. Budgetary pricing begins at $0.04 with volume discounts available.

*About Toshiba Corp. and TAEC*

**About TAEC**

Through proven commitment, lasting relationships and advanced, reliable electronic components, Toshiba enables its customers to create market-leading designs. Toshiba is the heartbeat within product breakthroughs from OEMs, ODMs, CMs, VARs, distributors and fabless chip companies worldwide. A committed electronic components leader, Toshiba designs and manufactures high-quality flash memory-based storage solutions, solid state drives (SSDs), hard disk drives (HDDs), discrete devices, advanced materials, medical tubes, custom SoCs/ASICs, imaging products, microcontrollers and wireless components that make possible today's leading smartphones, tablets, cameras, medical devices, automotive electronics, enterprise solutions and more.

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Information in this press release, including product pricing and specifications, content of services and contact information, is current and believed to be accurate on the date of the announcement, but is subject to change without prior notice. Technical and application information contained here is subject to the most recent applicable Toshiba product specifications.


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