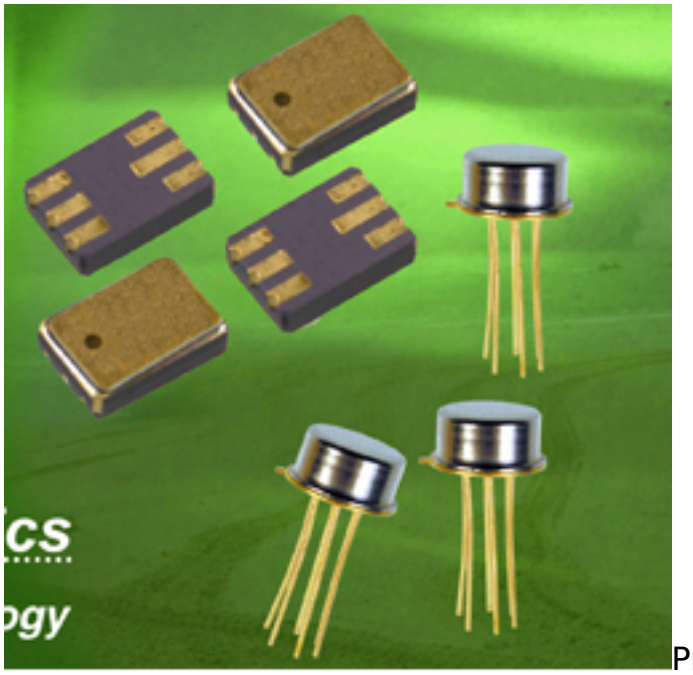
Isolators Provide 1kV Isolation to TX, TXV & COTS-level Standards



Providing military electronics design engineers with the ability to optically isolate sensitive circuit elements, TT electronics OPTEK Technology has developed a series of high-reliability, optically coupled isolators that provide up to 1kV electrical isolation with a high current transfer ratio. Designated the 4N2x and 4N4x Series, the optically coupled isolators are hermetically sealed metal packages – either surface mount 6-pin leadless chip carriers, or through-hole TO-78 metal cans – and are processed to TX and TXV MIL-PRF-19500/486 and /548 specifications. COTS-level devices are also available.

“These 4N2x and 4N4x Series devices were developed to meet customer demands for rugged, high-reliability isolators processed to MIL-PRF-19500 TX and TXV standards,” said Rodney Bailey, vice president of optoelectronic components for OPTEK Technology. “They are ideal for any high reliability circuit requiring high voltage isolation between input and output, especially in harsh environments. And we provide hermetically-sealed metal packages in either surface mount or through-hole configurations.”

The optically coupled isolators consist of a 935nm (4N2x Series) or an 890nm (4N4x Series) wavelength infrared-emitting diode and a NPN silicon phototransistor mounted in a hermetically sealed metal package, with a base contact provided for conventional transistor biasing. Devices are also available with the collector pin electrically isolated from the case.

Devices within the 4N2X Series all exhibit input diode forward current (IF) of 40mA (max), 10mA (typical); collector-emitter voltage (VCE) is rated at 35V (max); with 1kVDC voltage isolation. Their operating temperature range is from -65°C to

+125°C.
• 4N22 Series devices feature a minimum current transfer ratio (CTR) of 25%.
• 4N23 Series devices feature a minimum CTR of 60%
• 4N24 Series devices feature a minimum CTR of 100%

OPTEK's High-Reliability, Optically Coupled Isolators, pg 2

Devices within the 4N4x Series all exhibit input diode forward current (IF) of 40mA (max); collector-emitter voltage (VCE) is rated at 40V or 45V (max), depending on package style; with 1kVDC voltage isolation. Their operating temperature range is from -55°C to +125°C.
• 4N47 Series devices feature a minimum current transfer ratio (CTR) of 50%.
• 4N48 Series devices feature a minimum CTR of 100%
• 4N49 Series devices feature a minimum CTR of 200%

The 4N2x Series (TX, TXV) devices are processed to MIL-PRF-19500/486 standards; and the 4N4x Series (TX, TXV) are processed to MIL-PRF-19500/548 standards. Burn-in condition for all devices is as follows: VCE = 10V, IF = 40mA, PD = 275mW, TA = 25°C.

Packaging options for the 4Nxx Series optically-coupled isolators include a standard TO-78 metal can through-hole package; and a surface mount leadless chip carrier (designated with a "U" suffix to the part number). Both package types are hermetically sealed and are compatible with high temperature soldering processes.

For further information please visit: http://www.optekinc.com/contactus.aspx, or email the TT electronics North America Sales Office at sales@ttelectronics-na.com. To access the data sheet and other product information for the 4N2x Series (TO-78) optically-coupled isolators, visit: http://www.optekinc.com/viewparts.aspx?categoryID=7 or for 4N4x Series (LCC), please visit: http://www.optekinc.com/viewparts.aspx?categoryID=11

Visit the TT electronics at the AUSA show in Washington D.C, booth number 2060.

Source URL (retrieved on *07/26/2014 - 8:04am*):
http://www.ecnmag.com/product-releases/2010/08/isolators-provide-1kv-isolation-tx-txv-cots-level-standards?qt-video_of_the_day=0