DIC Develops World's First PPS Compound for MID Laser Direct Structuring (LDS)

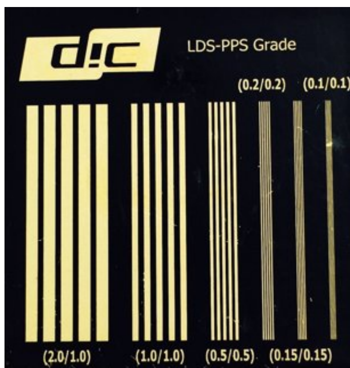
Tokyo, Japan – The DIC Corporation has developed and commercialized the world's first PPS injection molding compound for Laser Direct Structuring (LDS) technology. This process allows for selective metal plating of three-dimensional (3D) mechatronic parts. LPKF Laser & Electronics, a German-based laser manufacturer, recently tested and approved DIC's new PPS compound for use in LDS technology.

Molded Interconnect Device (MID) technology integrates electrical and mechanical functionality within a single construction unit. The direct application of conductor tracks on 3D parts completes conventional PCB (Printed Circuit Board) technology by adding another level of design freedom.

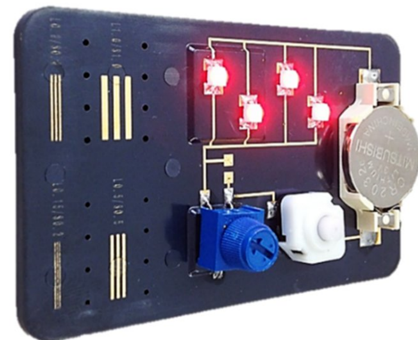
LPKF's Laser Direct Structuring is a commonly used MID technology. The 3D circuit carrier is injection molded from a modified compound which allows for laser activation and the successive metallization of the conductor tracks on the surface.

The newly developed DIC.PPS LP-150-LDS is the world's first LDS-PPS registered and listed by LPKF. This compound offers significant advantages for LDS applications which require high thermal and chemical resistance as well as dimensional stability. The compound provides additional benefits such as weight, space and cost savings through high design flexibility.

DIC.PPS LP-150-LDS bridges the gap between conventional engineering plastics, such as nylon, to more expensive high-temperature polymers, including LCP or PEEK.



Metallized Sample Plate



3D Structured Electronic Circuit

Advantages of DIC.PPS LP-150-LDS:

Material	Process
Outstanding thermal resistance	1-component injection molding
Excellent chemical resistance	Laser Direct Structuring
Extraordinary dimensional stability	Eco-friendly, electro-less plating process (Cu, Ni, Au)
Low CLTE	3D fine pitch circuits with fine structures (150 µm)
Inherent non flammability	Smooth surface after laser treatment R_a~4 µm
Extremely low water absorption	High pealing strength (≥1,0 N/mm)
	Heat resistant to soldering, no blistering

October 2016