



# Hysol<sup>®</sup> Semiconductor Molding Compounds

Hysol<sup>®</sup> Semiconductor Molding Compounds provide low stress, low water absorption and high physical strength for the most demanding applications. These products offer excellent performance in various processes and perform in wide application areas – from discrete/power devices to array packages. Our unique **“green” molding products** meet reliability requirements for regular and lead-free applications, and are designed to meet flammability requirements without the use of antimony, bromine, or phosphorous flame retardant compounds. Our patented SIGMA technology virtually eliminates intermetallic failures at high temperatures. The use of novel ion scavengers provides advanced moisture resistance.

Unique, high productivity molded flip chip underfill materials are formulated for applications of flip chip array packages, including CSPs, and meet JEDEC Level-3 260°C requirements. This molded underfill allows the package matrix to be underfilled as a unit before dicing, rather than processing each chip individually, and eliminates the need for the liquid underfill step.



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		PROPERTIES & FEATURES								
PRODUCT	GENERAL DESCRIPTION	GLASS TRANSITION TEMPERATURE, T <sub>g</sub> (°C)	CTE, α1 (PPM/°C)	CTE, α2 (PPM/°C)	FLEXURAL MODULUS (MPa)	FLEXURAL STRENGTH (GPa)	MOISTURE ABSORPTION (85/85 168 HOUR)	HIGH TEMPERATURE STABILITY	260°C REFLOW PROFILE PRECONDITION	GREEN FR
<b>MG15F Family</b>		<b>Anhydride Chemistry</b>								
<b>MG15F-R</b>	Power Discrete, RF and High Voltage Rectifier. Designed for high voltage power applications requiring good electrical stability at high temperature.	190	23	71	15.50	115	0.45	X		
<b>MG15F-35A</b>	Power Discrete, RF and High Voltage Rectifier. Designed for high voltage power applications requiring good electrical stability at high temperature.	190	21	70	15.50	123	0.45	X		
<b>MG15F-MOD11</b>	Asymmetric & surface mount packages. Very high T <sub>g</sub> , low stress, power CSP.	235	14	55	17.00	120	0.37	X	J1	X
<b>MG46F Family</b>		<b>ECN/DCP Chemistry</b>								
<b>MG46F</b>	Low stress, designed for encapsulation of TO, PDIP & SOIC packages. Applicable for devices having chip dimensions up to 250 mils square.	160	17	70	15.50	134	0.47	X		
<b>MG46F -AM</b>	Automold version of MG46F.	160	17	70	15.50	134	0.47	X		
<b>GR300 Family</b>		<b>Through Hole Discrete</b>								
<b>GR330</b>	Low cost, Through Hole Discretes Diode, and IC	150	19	50	17.00	139	0.40	X		X
<b>GR360</b>	High performance, good reliability, low cost, applicable for low pin count PDIP IC's. Also available in AM version.	170	19	65	16.90	140	.045	X		X
<b>GR380</b>	SMD PDIP SOIC packages and QFP. Low stress, High Voltage Rectifier, Power Discrete & Small Outline Transistors	160	17	70	13.50	130	0.35	X		X
<b>GR600 Family</b>		<b>Surface Mount Discrete</b>								
<b>GR625</b>	Surface Mount Discrete, IC, QFP Passes JEDEC Level 1, 260°C Reflow	140	13	40	17.50	130	0.25	X	J1	X
<b>GR640</b>	Designed for small signal and small outline transistors. High Speed Automold, very fast cure	165	21	65	16.20	155	0.80	X	J2	X
<b>GR700 Family</b>		<b>High Temperature Application</b>								
<b>GR725</b>	Automotive (20,000 hrs @ 185°C), green, designed for surface mount discrete packages operating at high temperature. Passes JEDEC Level 1.	135	12	35	20.00	116	0.28	X	J1	X
<b>GR750</b>	High thermal conductivity - isolated packages, green. Designed to improve thermal management for semiconductor devices. High adhesion to copper & copper alloys.	160	23	70	19.70	120	0.90	X		X
<b>GR800 Family</b>		<b>Surface Mount IC</b>								
<b>GR828</b>	Green, specifically designed for SO packages up to TSSOP/TQFP. Passes JEDEC Level 1 @ 260°C Reflow.	145	13	45	18.00	127	0.25	X	J1	X
<b>GR9800 Family</b>		<b>Asymmetric Packages</b>								
<b>GR9800</b>	Molded Flip Chip encapsulant designed for flip chip in array package applications. Applicable for underfill & overmolding flip chip assemblies with gap sizes as low as 40 micron.	200	14	48	14.50	110	0.40	X	J2	X
<b>GR9810</b>	Laminate based packages. Designed for use as an overmold. Low warpage, "green" JEDEC Level 2 capability.	195	11	35	23.00	120	0.30	X	J2	X
<b>GR9820</b>	Matrix QFN, "green", very low stress, ultra low warpage, adhesion can be optimized for specific lead frame metalization. JEDEC Level 1 capable	195	11	35	21.80	110	0.31	X	J1	X
<b>GR9825</b>	Single cavity QFN lead frame packages Passes JEDEC Level 1	145	13	45	18.00	127	0.25	X	J1	X
<b>GR9840</b>	Specifically designed for Smart Card applications requiring excellent molding through small gate areas.	165	21	65	16.2	155	0.80	X		X