

Data Sheet

**Halogen-free
& High elasticity Low CTE Ultra-thin IC substrate materials
(Black type)**

LEXCMGX Laminate R-1515E

Any letters with parentheses () at the end of a part number are for identification code in our company and are not included in the part numbers registered for UL certification.

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General Properties / Laminate R-1515E

Items		Units	Test Method	Condition	Typical Values	
					R-1515E	
THERMAL	Glass Transition Temp (Tg)		C	DMA	As received	270 *1
	Thermal Decomposition Temp (Td)			TGA		390
	Time to Delam (T260)	With Cu	Min	IPC TM-650 2.4.24.1		> 120
	Time to Delam (T288)					> 120
	CTE : α1	X - axis	ppm / C	IPC TM-650 2.4.24	< Tg	8 - 10 *1
		Y - axis				8 - 10 *1
		Z - axis				22 *2
	CTE : α2	Z - axis			> Tg	95 *2
Thermal Conductivity		W / mK	Laser Flash	25 C	0.7	
ELECTRICAL	Volume Resistivity		MΩ - cm	IPC TM-650 2.5.17.1	C-96/35/90	1×10^9 *1
	Surface Resistivity					MΩ
	Dielectric Constant (Dk)	1GHz	-	IPC TM-650 2.5.5.9	C-24/23/50	4.7
	Dissipation Factor (Df)					0.011
PHYSICAL	Water Absorption		%	IPC TM-650 2.6.2.1	D-24/23	0.3 *1
	Tensile Modulus		GPa	ASTM D3039	25 C	27 *1
	Poisson's Ratio					0.2 *2
	Flexural Modulus		GPa	JIS C6481	25 C	33
					250 C	18
	Peel Strength	12 um	kN / m	IPC TM-650 2.4.8	As received	0.9
Flammability		-	UL 94V	C-48/23/50	94V-0†1	

†1 The value represents Panasonic internal test results based on the UL94 test method for flammability and is NOT intended to indicate that the product is UL certified. If UL certification is required, use R-151YE for the UL recognized grades.

The sample thickness. *1 0.1mm , *2 0.8mm

* The data in the above table represents typical values for your reference and are not guaranteed values.

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