Revised 2010.4.5

Trial Grade introduction for LED-Lighting application

Mitsubishi Engineering Plastics Corporation

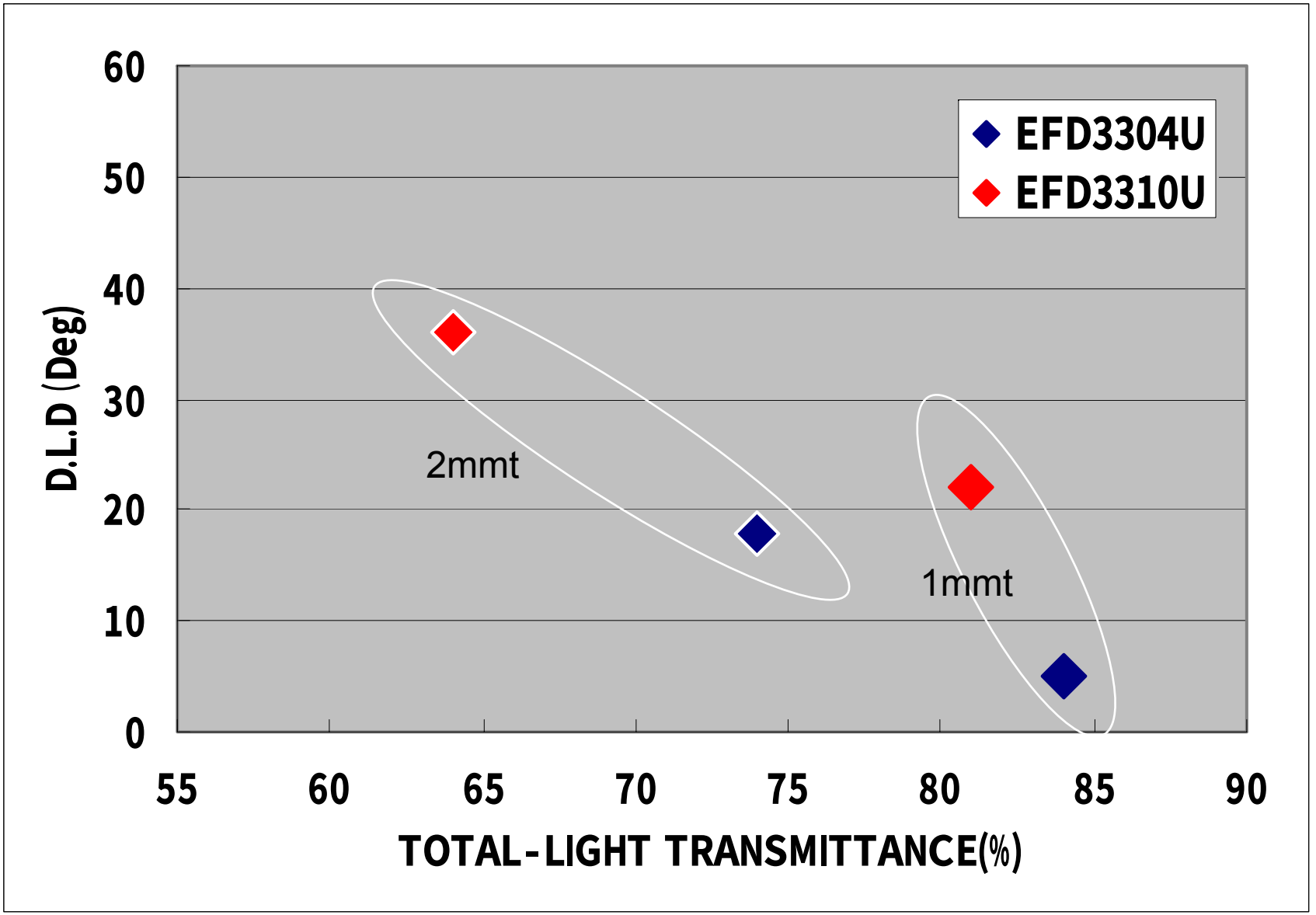
Iupilon Injection Grades

2010.4.5 ISSUED

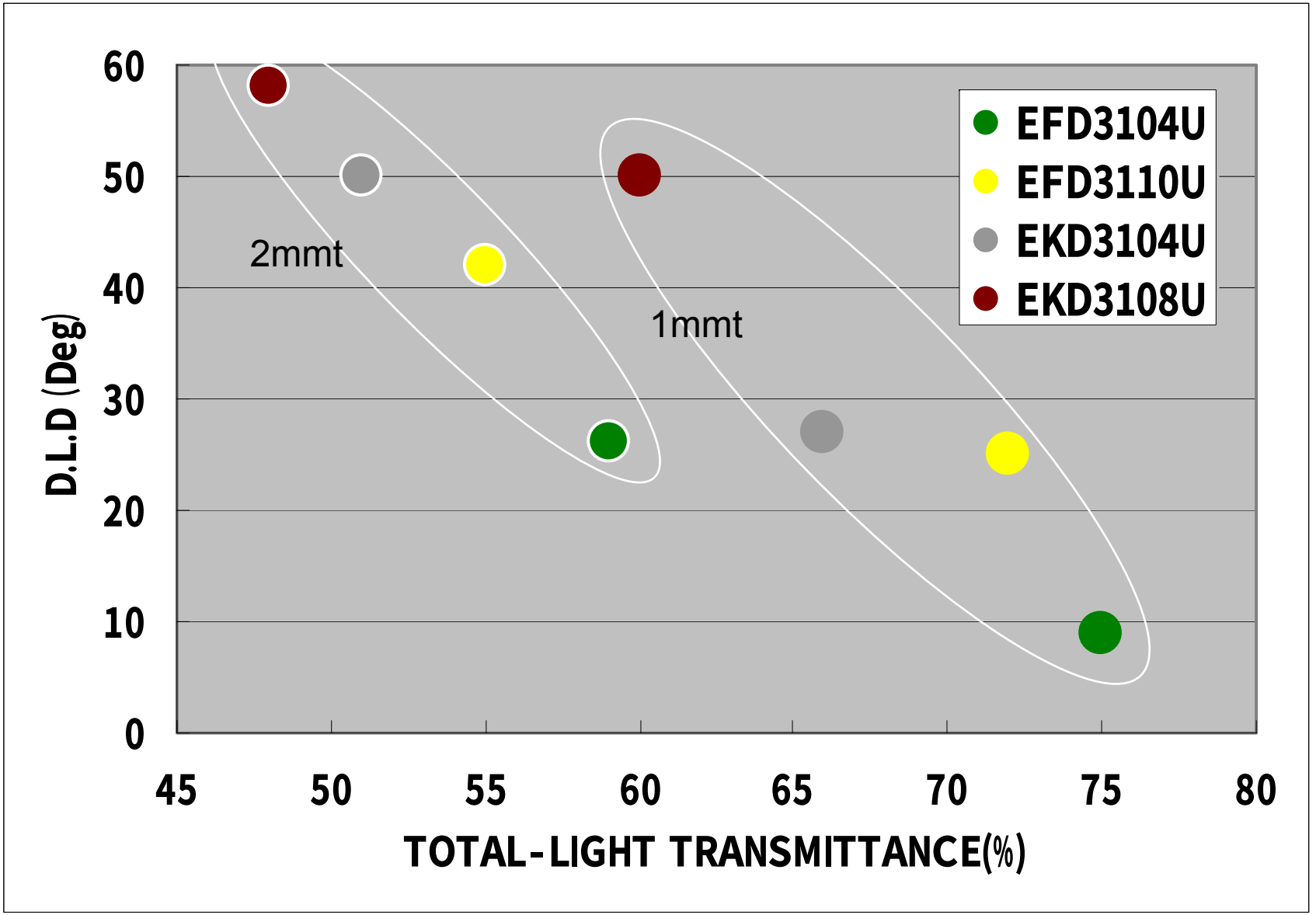
				1.5mmt V－0 Equivalent		1.0mmt V－0 Equivalent			
Ploperties	**Test Method**	**Terms**	**Units**	**EFD3304U**	**EFD3310U**	**EFD3104U**	**EFD3110U**	**EKD3104U**	**EKD3108U**
Physical Ploperties									
Density	ISO 1183	-	g/cm^3	**1.20**	1.20	1.20	1.20	1.20	1.20
Rheological Properties									
Melt Volume-Flow Rate	ISO 1133	300℃、1.2kg	cm^3/10min	7～12	7～12	7～12	7～12	7～12	7～12
Bar-Flow	T=300℃、MT=80℃ P=2000kg/cm2	1mmt	mm	120-150	120-150	120-150	120-150	120-150	120-150
		2mmt	mm	350-390	350-390	350-390	350-390	350-390	350-390
Mechanical Ploperties									
Yield Stress	ISO527-1 527-2	-	Mpa	64	64	64	64	64	64
Yield Strain			%	6	6	6	6	6	6
Nominal Strain at Bleak			%	70～120	70～120	70～120	70～120	70～120	70～120
Flexual Strength	ISO 178	-	MPa	90	90	90	90	90	90
Flexual Modulus				2,200	2,200	2,200	2,200	2,200	2,200
Charpy Notched Impact	ISO 179-1／ISO179-2	3mmt	KJ/m^2	9	9	9	9	14	26
Thermal Ploperties									
Temperature of Deflection Under Load	ISO75-1、ISO75-2	1.80MPa	℃	124	124	124	124	124	124
Coefficient of Linear Thermal Expansion	ISO 11359-2	MD	1/℃	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05	6.5E-05
		TD	1/℃	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05	6.6E-05
Flammability	UL94	1.0mm	-	V－2 Equivalent	V－2 Equivalent	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent
		1.5mm	-	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent	V－0 Equivalent
Optical Proparties									
Total-Light Transmittance	ASTM D1003	1mmt	%	84	**81**	75	72	66	60
		2mmt	%	74	64	**59**	**55**	**51**	**48**
Haze	ASTM D1003	1mmt	%	93	98	96	99	99	99
		2mmt	%	98	99	99	99	99	99
Diffusivity	-	1mmt	%	11	30	16	35	42	57
		2mmt	%	27	46	37	51	57	63
D.L.D	-	1mmt	Deg	5	22	9	25	27	50
		2mmt	Deg	18	36	26	42	50	58
Molding Shrinkage									
Molding Shrinkage	3mmt	MT=80℃	%	0.5～0.7	0.5～0.7	0.5～0.7	0.5～0.7	0.5～0.7	0.5～0.7

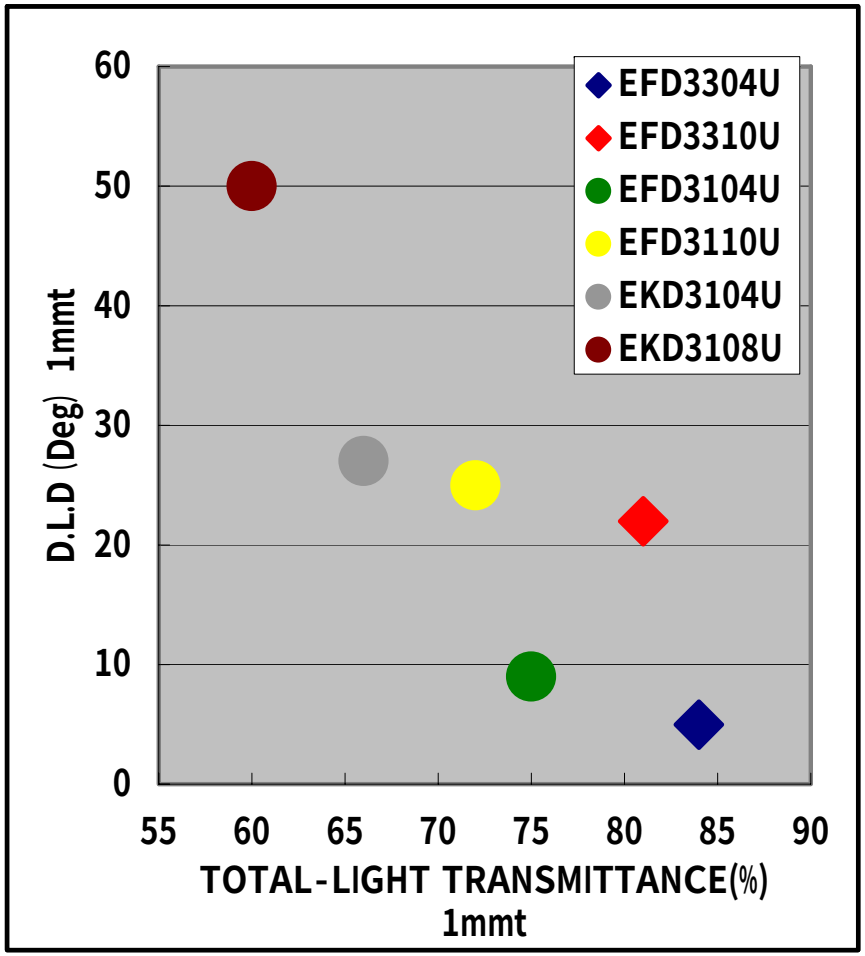
The listed properties are portrayed as general information only and not product specification.

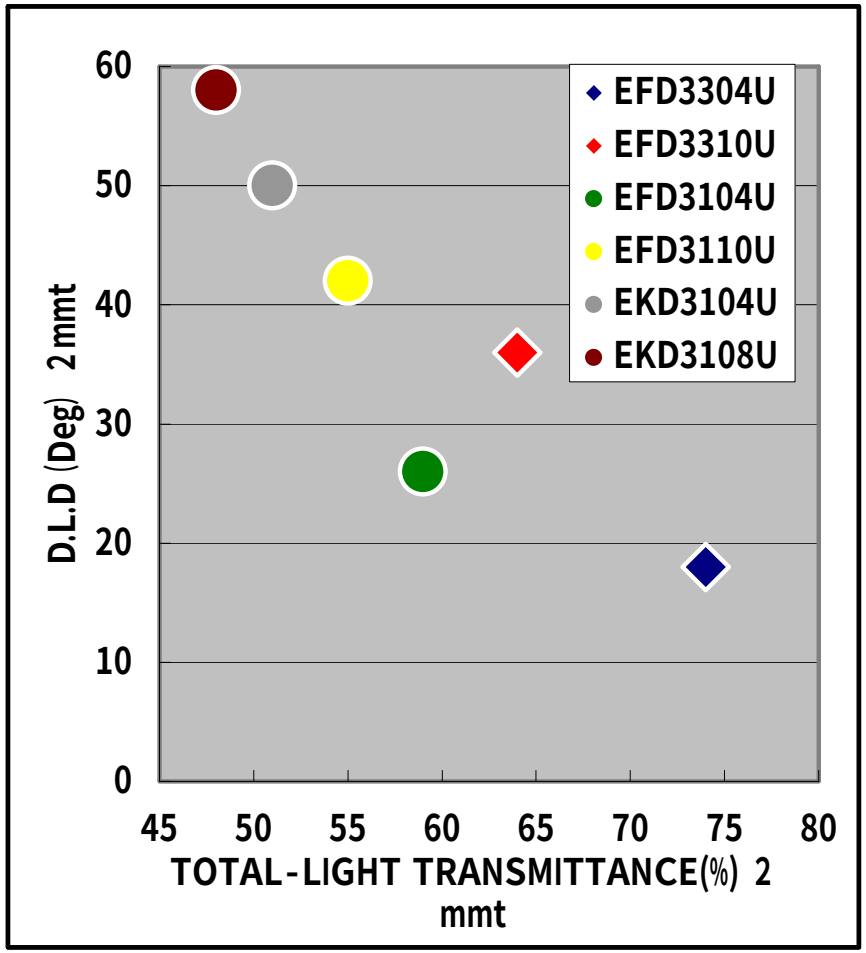
Optical Property Of 1.5mmtV-0(equivalent) Trial Grade



Optical Property Of 1.0mmtV-0(equivalent) Trial Grade




60
50
40
30
20
10
0
D.L.D (Deg) 1mmt
55
60
65
70
75
80
85
90
TOTAL-LIGHT TRANSMITTANCE(%)
1mmt
EFD3304U
EFD3310U
EFD3104U
EFD3110U
EKD3104U
EKD3108U


60
50
40
30
20
10
0
D.L.D (Deg) 2mmt
45
50
55
60
65
70
75
80
TOTAL-LIGHT TRANSMITTANCE(%) 2
mmt
EFD3304U
EFD3310U
EFD3104U
EFD3110U
EKD3104U
EKD3108U

Optical Property

Brightness; Evaluated by Total-light Transmittance
・measurement method・・・ASTM D1003
・measurement equipment・・・Haze Meter NDH2000
(NIPPON DENSHOKU INDUSTRIES Co)

Efficiency of diffusion; Evaluated by diffusivity, and Degree of Light Distribution (D.L.D.)

$$\text{Diffusivity(\%)} = \frac{\text{Brightness at } 20° + \text{Brightness at } 70}{(\text{Brightness at } 5°)*2} \times 100$$

D.L.D. is the angle whose brightness is equivalent to the half value of 0°.

・measurement equipment・・・goniophotometer
(Murakami Color Research Laboratory)