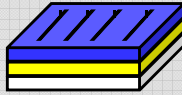
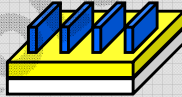
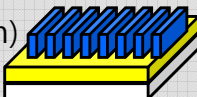


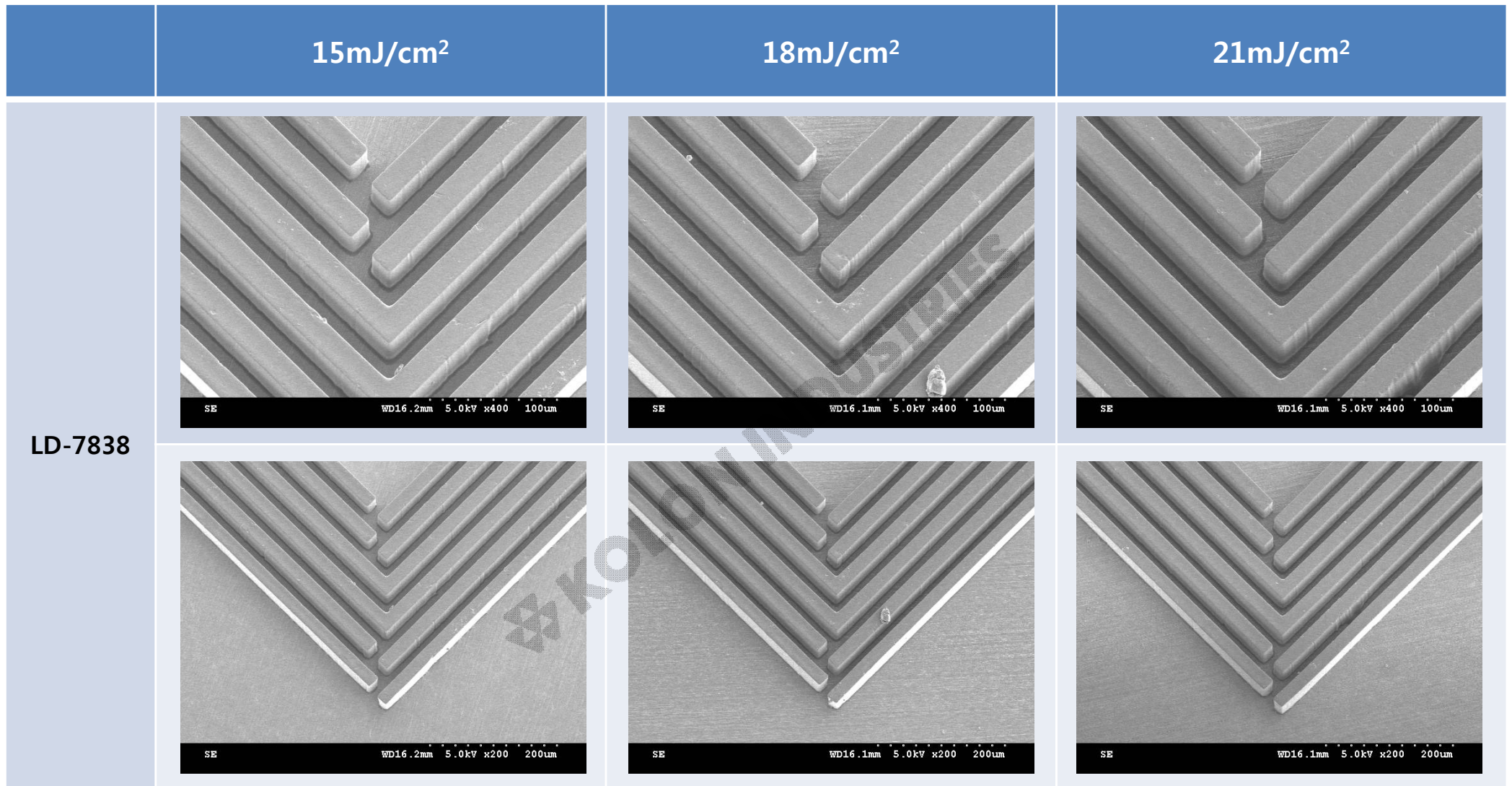
# TDS of LD-7838

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# Summary of Circuit Properties – 405nm Wavelength

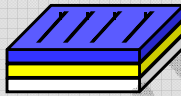
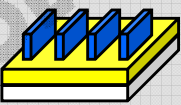
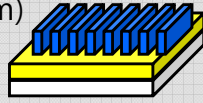
		LD-7838
<b>Minimum Developing Time</b> (sec.)		<b>22</b>
<b>Sensitivity</b> (sst/41sst)	15 mJ/cm <sup>2</sup>	18.0
	<b>18 mJ/cm<sup>2</sup></b>	<b>18.8</b>
	21 mJ/cm <sup>2</sup>	19.2
<b>Resolution</b> (μm) 	15 mJ/cm <sup>2</sup>	21
	<b>18 mJ/cm<sup>2</sup></b>	<b>21</b>
	21 mJ/cm <sup>2</sup>	23
<b>Adhesion</b> (μm) 	15 mJ/cm <sup>2</sup>	22
	<b>18 mJ/cm<sup>2</sup></b>	<b>20</b>
	21 mJ/cm <sup>2</sup>	19
<b>1/1 Resolution</b> (μm) 	15 mJ/cm <sup>2</sup>	20
	<b>18 mJ/cm<sup>2</sup></b>	<b>20</b>
	21 mJ/cm <sup>2</sup>	21

- Test pattern : KOLON test pattern • Substrate : 0.4t FR4 1oz
- Lamination : Hakuto 610i, 110°C, Speed 2.0m/min, Pressure 5Kgf/cm<sup>2</sup>
- Exposure : Hitachi Via Mechanics DE-1UH, 405nm DI, Correction 2.0μm
- Development : 1.0wt% Na<sub>2</sub>CO<sub>3</sub>, Temp. 30 °C, **Break Point 50%**, Spray Pressure 1.5kg/cm<sup>2</sup>



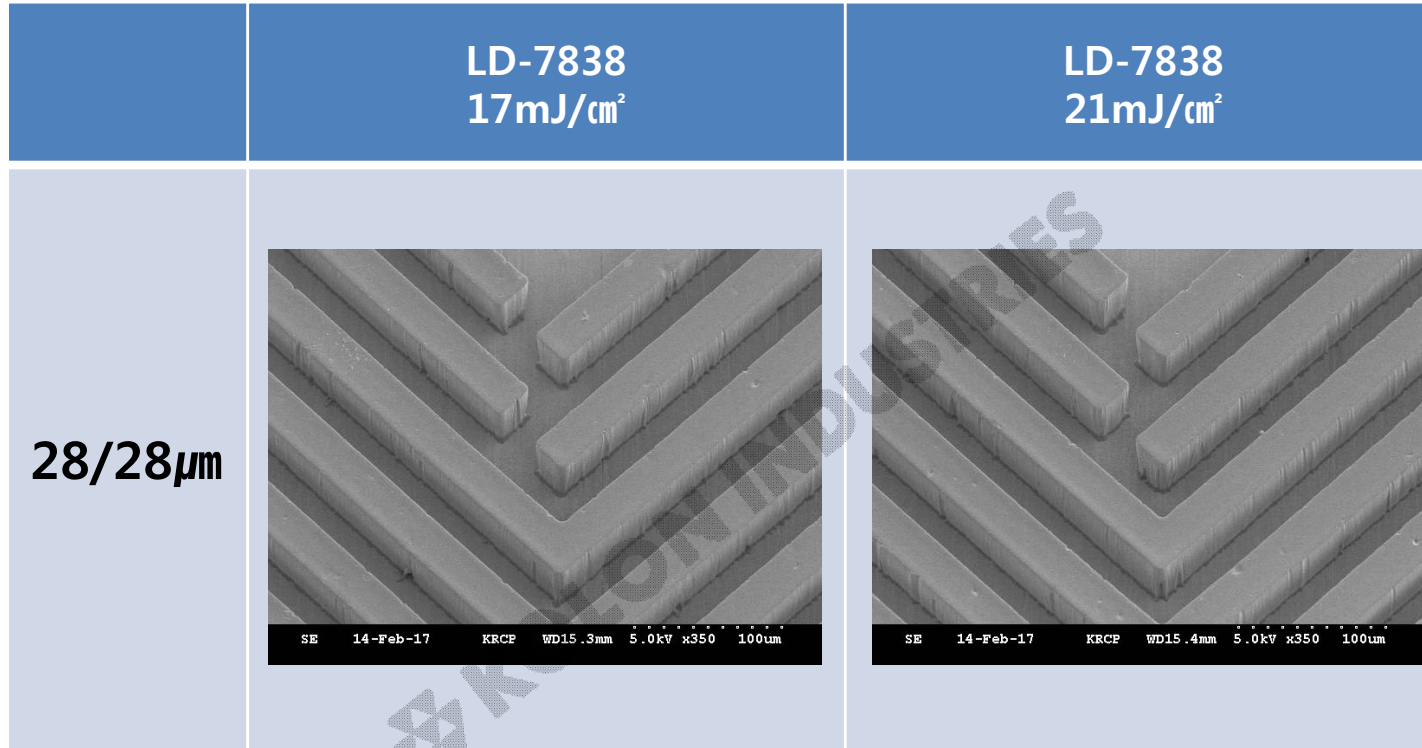
- Test pattern : KOLON test pattern • Substrate : 0.4t FR4 1oz
- Lamination : Hakuto 610i, 110°C, Speed 2.0m/min, Pressure 5Kgf/cm<sup>2</sup>
- Exposure : Hitachi Via Mechanics DE-1UH, 405nm DI, Correction 2.0 $\mu$ m
- Development : 1.0wt% Na<sub>2</sub>CO<sub>3</sub>, Temp. 30 °C, **Break Point 50%**, Spray Pressure 1.5kg/cm<sup>2</sup>

# Summary of Circuit Properties – 355nm Wavelength

		LD-7838
<b>Minimum Developing Time</b> (sec.)		<b>22</b>
<b>Sensitivity</b> (sst/41sst)	15 mJ/cm <sup>2</sup>	16.1
	17 mJ/cm <sup>2</sup>	17.7
	21 mJ/cm <sup>2</sup>	19.7
<b>Resolution</b> (μm) 	15 mJ/cm <sup>2</sup>	24
	17 mJ/cm <sup>2</sup>	25
	21 mJ/cm <sup>2</sup>	27
<b>Adhesion</b> (μm) 	15 mJ/cm <sup>2</sup>	31
	17 mJ/cm <sup>2</sup>	30
	21 mJ/cm <sup>2</sup>	27
<b>1/1 Resolution</b> (μm) 	15 mJ/cm <sup>2</sup>	30
	17 mJ/cm <sup>2</sup>	29
	21 mJ/cm <sup>2</sup>	24

- Test pattern : KOLON test pattern • Substrate : 0.4t FR4 1oz
- Lamination : Hakuto 610i, 110°C, Speed : 2.0m/min, Pressure : 5Kgf/cm<sup>2</sup>
- Exposure : **Orbotech ultra 80**, 355nm LDI
- Development : 1.0wt% Na<sub>2</sub>CO<sub>3</sub>, Temp. 30 °C, **Break Point 50%**, Spray Pressure 1.5kg/cm<sup>2</sup>

본 문서는 영업상 주요 자산으로서 부정경쟁방지 및 영업비밀보호에 관한 법률을 포함하여 관련 법령에 따라 보호되는 중요한 정보를 포함하고 있으므로, 그 전부 또는 일부를 무단으로 열람하거나 공개, 사용, 복제, 유출 등은 하는 행위는 엄격히 금지됩니다.



- Test pattern : KOLON test pattern • Substrate : 0.4t FR4 1oz
- Lamination : Hakuto 610i, 110°C, Speed : 2.0m/min, Pressure : 5Kgf/cm<sup>2</sup>
- Exposure : **Orbotech ultra 80**, 355nm LDI
- Delveopment : 1.0wt% Na<sub>2</sub>CO<sub>3</sub>, Temp. 30 °C, **Break Point 50%**, Spray Pressure 1.5kg/cm<sup>2</sup>

NaOH (2.5 wt%)	LD-7838
15 mJ/cm <sup>2</sup>	53 (S)
17 mJ/cm <sup>2</sup>	57 (S)
21 mJ/cm <sup>2</sup>	60 (S)

### Test Condition

- Pretreatment → Lamination → Exposure  
→ Developing → Strip
- Temperature : 50 °C
- Concentration : NaOH 2.5wt%
- Test Method : Dipping Method

### Size of Stripping Particles

- S – Small (Lower than 0.5cm)
- M –Medium (0.5-2cm)
- L – Large (2-5cm)
- LL – Extra Large (over 5cm)



	Defoamer (%)	Filtering Time (50ml)	Filtering Time (100ml)	Sludge Weight (400ml filtering)	Scum
LD-7838	NO	65 sec	128 sec	0.21 g	無

**<Filter Time / Sludge Test condition>**

- Filter paper : ADVANTEC-5A
- Filtering Time : Measure after being filtered 50ml, 100ml
- Sludge Weight : Measure sludge weight after being filtered 400ml
- Internal Standard : Under 150 Sec. and under 0.3g for being filtered 100ml in case of over 30um of DFR.

	LD-7838
Time	Height of Foam (cm)
10 Min.	2.6
20 Min.	4.9
30 Min.	6.8
40 Min.	8.0
50 Min.	8.9
60 Min.	9.8
70 Min.	10.7
80 Min.	11.5
90 Min.	11.5
	<b>Maintain</b>

### Test Condition

- Test film : LD-7838 (0.5m<sup>2</sup>/ℓ)
- Temp. : 30 °C
- Developer : 1.0wt% Na<sub>2</sub>CO<sub>3</sub>
- Spray Pressure : 1.0~0.8kg.f
- Internal Standard : Under 14cm





# General Process Guideline of LD-7838

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Process		Best Condition	Recommendation	Specification
Lamination	Roll Temp. (°C)	110	110 ± 10	Exit Temp.: 50 ± 10 °C
	Speed (m/min)	2.0	2.0 ± 1.0	
	Roll Pressure (Kgf/cm <sup>2</sup> )	4.0	4.0 ± 1.5	
Holding Time	Time (min)	20min~4hrs	15min – 8hrs	Under Yellow Light
Exposure (355nm)	Exposure Energy (mJ/cm <sup>2</sup> )	21mJ (20/41 <sup>ST</sup> )	15~21mJ (16~20/41 <sup>ST</sup> )	Orbotech ultra 80 355nm LDI
Holding Time	Time (min)	1hrs	20min – 24hrs	Under Yellow Light
Development	Chemical	1.0wt%	1.0 ± 0.2wt% Na <sub>2</sub> CO <sub>3</sub>	
	Temp. (°C)	30	30 ± 2	
	Break Point	50%	40~60%	
	Spray Pressure (Kgf/cm <sup>2</sup> )	2.0	2.0 ± 0.5	
Stripping	Chemical	3.0	1.5 – 4.0wt% NaOH	
	Temp. (°C)	50	45-55	
	Break Point	50	40~60%	