



가

24 × 24

16 × 16

1. Cluster LED

LED

(dot)

Cluster LED

(輝度)

(dot)

(

(Variable Mes-  
sage Sign, VMS)  
(ITS)

가

1),

AlInGaP LED( )

. LED

VMS (LED) (Ga) (Al),  
LED Cluster (P) (As)  
, AlInGaP LED  
(In)

(視認性) 가 가 . 1 LED

1.

	(nm)	LED ( )	(lm/W)	(%)		(lm/W)	
GaP	565	GaP : N(GaP)	610	0.3	0.7	1.8	4.9
	555	GaP (GaP)	680	0.1	0.16	0.68	1.09
	590	GaP : NN(Gap)	450	-	0.1	-	0.45
	700	Gap : Zn-O(Gap)	20	3~4	12.6	0.6~0.8	2.5
Ga(P, As)	590	GaP <sub>0.85</sub> As <sub>0.15</sub> : N(GaP)	450	0.15	0.65	0.66	1.35
	630	GaP <sub>0.55</sub> As <sub>0.35</sub> : N(GaP)	190	0.2~0.3	0.2	0.4~0.6	1.2
	650	DaP <sub>0.4</sub> As <sub>0.6</sub> (GaAs)	70	0.2	5~8	0.14	0.35
(Al, Ca)As	660	Al <sub>0.32</sub> Ga <sub>0.68</sub> As(GaAs)	40	5~8	18	2~3.2	7.2
	590	In <sub>0.5</sub> (Ga <sub>0.7</sub> Al <sub>0.3</sub> ) <sub>0.5</sub> P(GaAs)	450		1.0		4.5
	620	In <sub>0.5</sub> (Ga <sub>0.8</sub> Al <sub>0.2</sub> ) <sub>0.5</sub> P(GaAs)	280		1.5		4.2
AlInGap	590	In <sub>0.5</sub> (Ga <sub>0.7</sub> Al <sub>0.3</sub> ) <sub>0.5</sub> P(GaAs)	450		1.0		4.5
	620	In <sub>0.5</sub> (Ga <sub>0.8</sub> Al <sub>0.2</sub> ) <sub>0.5</sub> P(GaAs)	280		1.5		4.2

2. AlInGap LED Cluster LED

	Cluster LED	AlInGap LED	
@20mA	255~690mcd	765~2,900mcd	3~4
	-25~80	-40~100	
	1.85~2.5V	2.02~2.4V	
	4V	5V	
	660nm, 565nm	590nm	
가	(70 / )	(240 / )	3 *

\* 가 3 , LED (pixel) 22 26 LED가 8 가 .

AlInGaP LED (590nm) Cluster VMS  
 가 .( 2) Cluster VMS  
 LED  
 가 , LED 가  
 Cluster LED , LED 3

가 AlInGaP LED

35% 가 4, (PVD)

가2 ( , ) 가 5

1 ( ) VMS LED가

가 LED

가 Ariake

2.0m, CH

가 110%

120% (66% , 26%)

8% )

1

가 Cluster

가

(Electro conductive prefabricated vertical drain)

가 H.O Abiera

N. Miura AIT

D.T. Bergado

(electro conductive prefabricated vertical drain)

VMS

(electro-conductive drain)

1.