
HL6501MG

Visible High Power Laser Diode for DVD-RAM

HITACHI

ADE-208-515F (Z)

Preliminary

7th Edition

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Description

The HL6501MG is a 0.65 μm band AlGaInP laser diode(LD) with a multi-quantum well (MQW) structure. It is suitable as a light source for large capacity optical disc memories, such as DVD-RAM, and various other types of optical equipment.

Hermetic sealing of the small package ($\phi 5.6$ mm) assures high reliability.

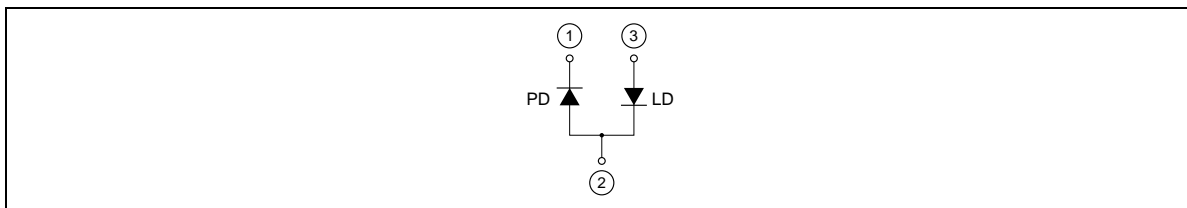
Application

- Optical disc memories
- Optical equipment

Features

- High output power : 35 mW (CW)
- Visible light output : $\lambda_p = 658$ nm Typ
- Small package : $\phi 5.6$ mm
- Low astigmatism : 6 μm Typ ($P_o = 5$ mW)

Internal Circuit



HL6501MG

Absolute Maximum Ratings ($T_c = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
Optical output power	P_o	35	mW
Pulse optical output power	P_o (pulse)	50 *	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	V
Photo diode reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	-10 to +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

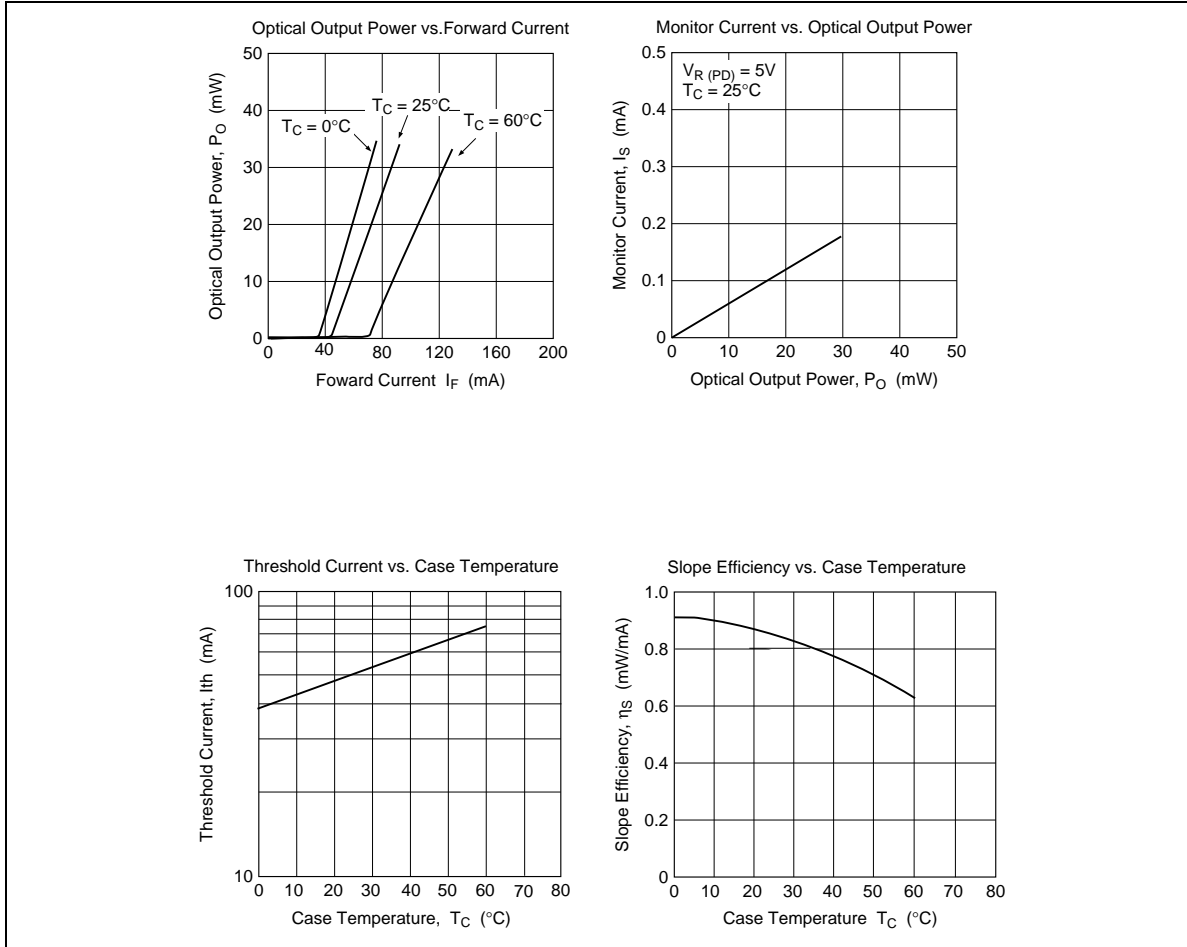
Note: Pulse condition : Pulse width = 100 ns, duty = 50%

Optical and Electrical Characteristics ($T_c = 25^\circ\text{C}$)

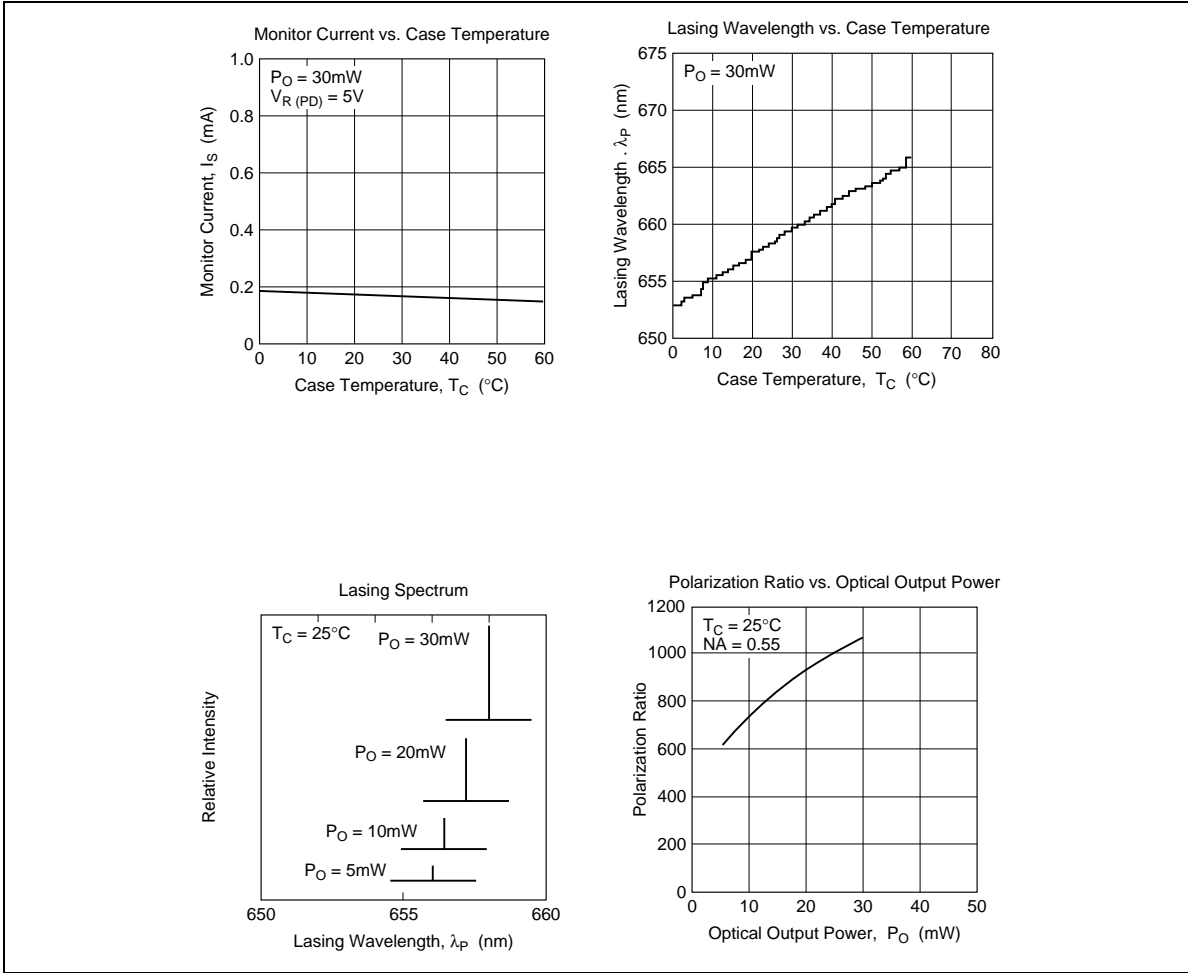
Items	Symbols	Min	Typ	Max	Units	Test Conditions
Optical output power	P_o	35	—	—	mW	Kink free *
Pulse optical output power	$P_{o(\text{pulse})}$	50	—	—	mW	Kink free *
Threshold current	I_{th}	30	45	70	mA	—
Operating voltage	V_{op}	2.1	2.6	3.0	V	$P_o = 30$ mW
Slope efficiency	η_s	0.5	0.75	1.0	mW/mA	$18(\text{mW}) / (I_{(24\text{mW})} - I_{(6\text{mW})})$
Lasing wavelength	λ_p	645	658	665	nm	$P_o = 30$ mW
Beam divergence parallel to the junction	$\theta_{//}$	7	8.5	10.5	deg.	$P_o = 30$ mW
Beam divergence perpendicular to the junction	θ_{\perp}	18	22	26	deg.	$P_o = 30$ mW
Monitor current	I_s	0.05	0.3	1.5	mA	$P_o = 30$ mW, $V_{R(PD)} = 5$ V
Asigmatism	A_s	—	6	—	μm	$P_o = 5$ mW, NA = 0.55

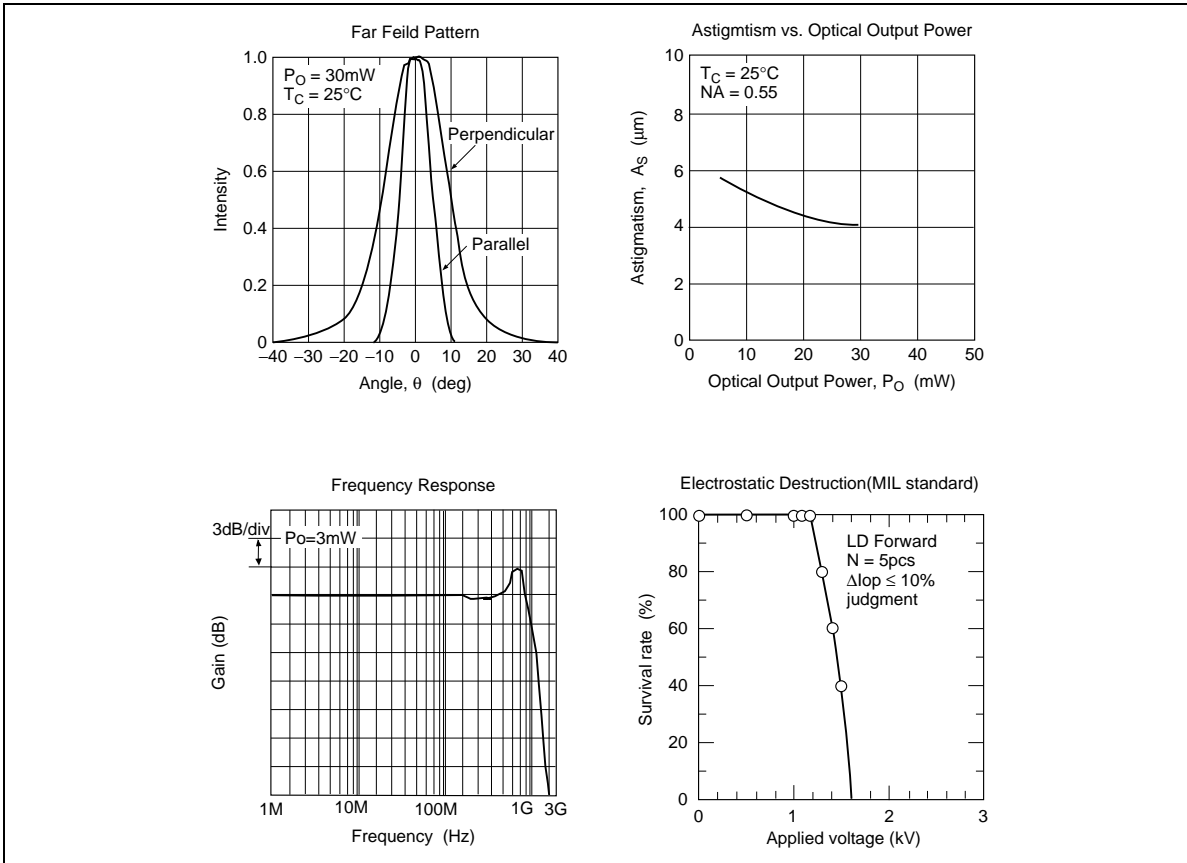
Note: Kink free is confirmed at the temperature of 25°C .

Curve Characteristics



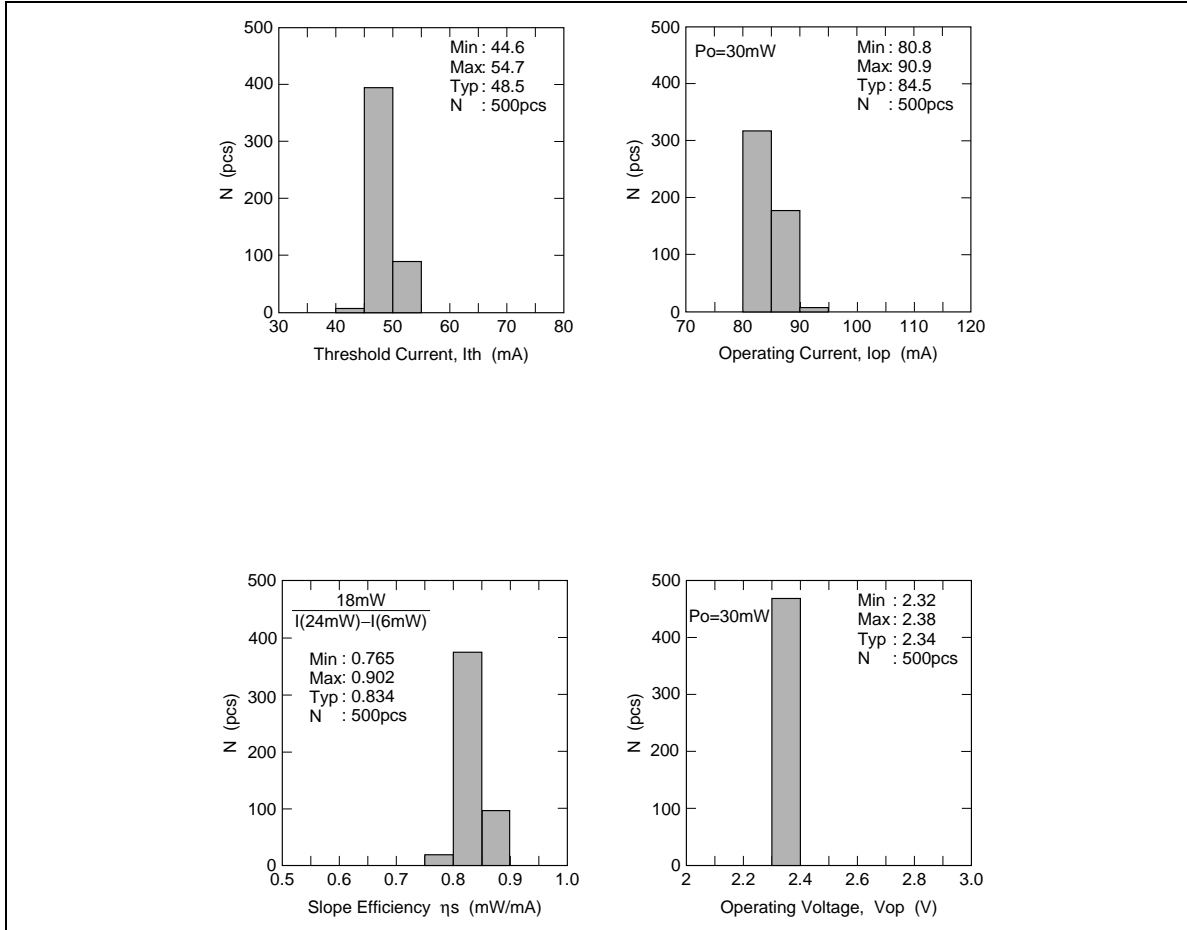
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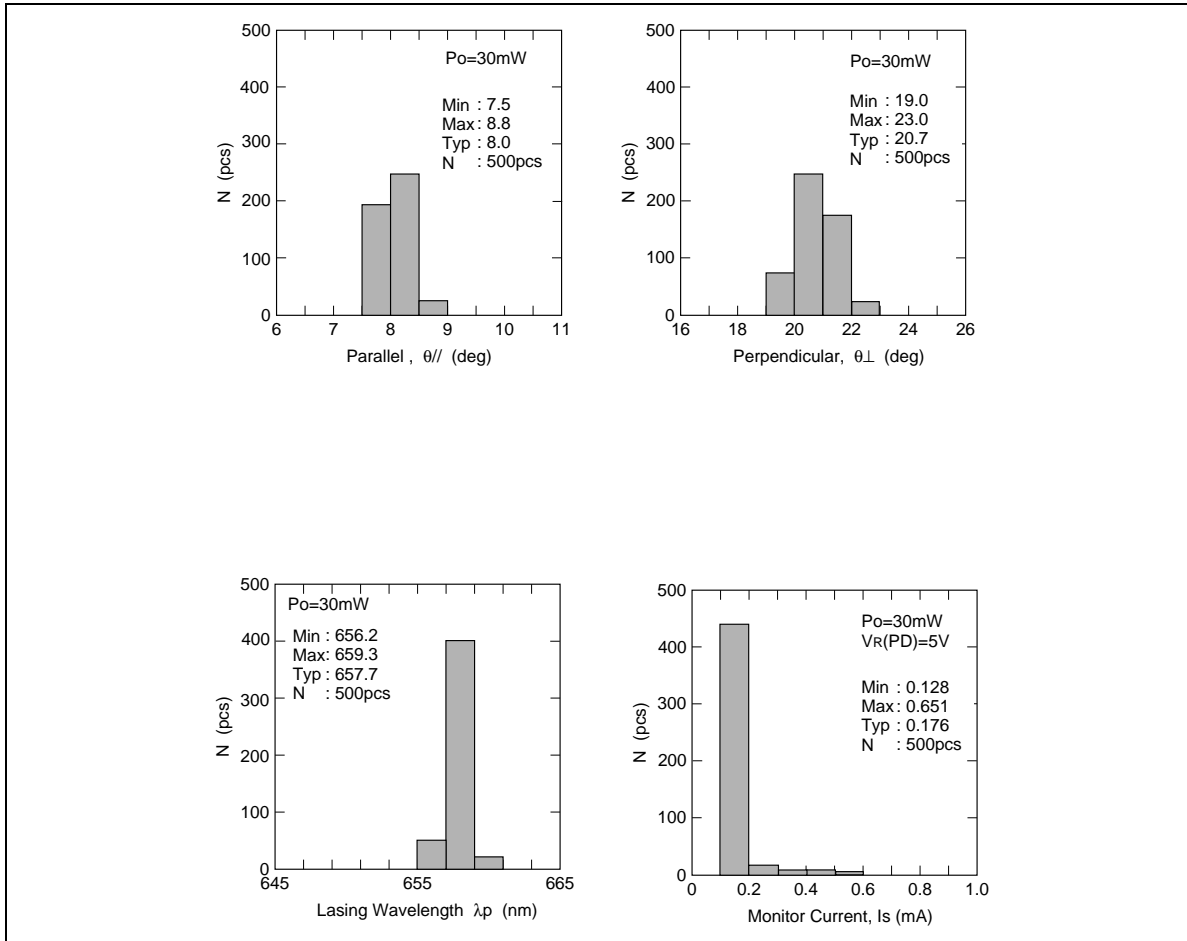




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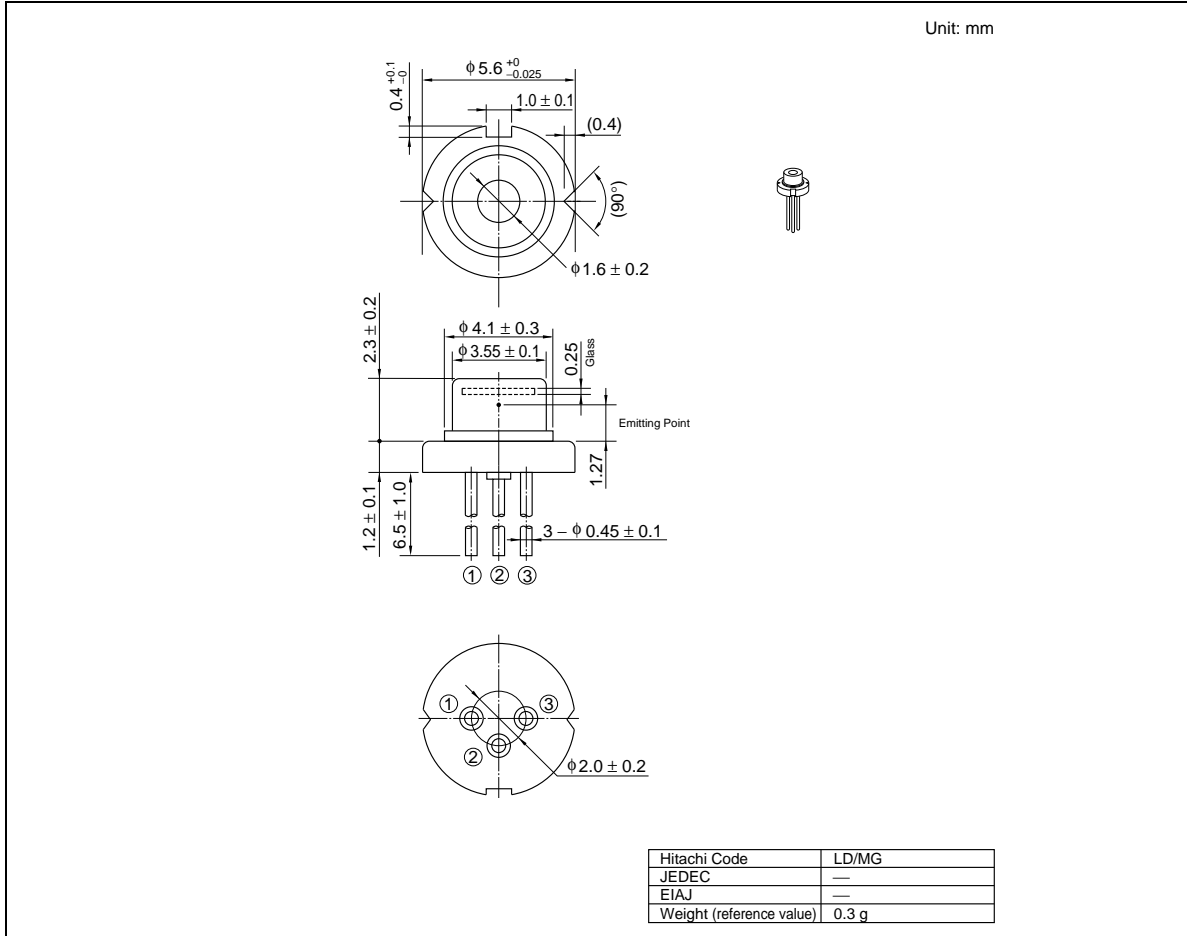
Characteristics Distribution





HL6501MG

Package Dimensions



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