LITEON® OPTOELECTRONICS PCN

Product /Process Change Notification

PCN Originator:

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Change Type:

Product reshelve

Part Affected or Product Description:

HSDL-5400, HSDL-5400#011, HSDL-5400#021, HSDL-5400#031, HSDL-5400#1S1

HSDL-5420, HSDL-5420#011, HSDL-5420#021, HSDL-5420#031, HSDL-5420#1S1

HSDL-4400, HSDL-4400#1L1, HSDL-4400#011, HSDL-4400#021, HSDL-4400#031, HSDL-4400#1S1

HSDL-4420, HSDL-4420#1L1, HSDL-4420#011, HSDL-4420#021, HSDL-4420#031, HSDL-4420#1S1

Description and Extent of Change:

Since the COVID-19 pandemic relief, the situation for transportation of raw materials gets better and market trend stands with our HSDL 44xx and HSDL 54xx series. Liteon decides to continue the supply for the HSDL 54xx and HSDL 44XX series with all the performance and reliability in the same level without intention to EOL except for unforced issues such as wars, natural hazard, and pandemic.

HSDL-44xx Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Peak Forward Current (Duty Factor = 20%, Pulse Width = 100 µs)	I_{FPK}		500	mA
DC Forward Current	I_{FDC}		100	mA
Power Dissipation	P_{DISS}		100	mW
Reverse Voltage (I_R = 100 µA)	V_R	5		V
Transient Forward Current (10 µs Pulse)	I_{FTR}		1.0	A
Operating Temperature	T_O	-40	85	°C
Storage Temperature	T_S	-55	100	°C
Junction Temperature	T_J		110	°C
Lead Solder Temperature [1.6 mm (0.063 in.) from body]			260/5 s	°C
Reflow Soldering Temperatures				
Convection IR			235/90 s	°C
Vapor Phase			215/180 s	°C

Note: The transient peak current in the maximum nonrecurring peak current the device can withstand without damaging the LED die and the wire bonds.

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HSDL-44xx Electrical Characteristics at T_A = 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V_F	1.30	1.50 2.15	1.70	V	I_{FDC} = 50 mA I_{FPK} = 250 mA
Forward Voltage Temperature Coefficient	$\Delta V_F/\Delta T$		-2.1 -2.1		mV/°C	I_{FDC} = 50 mA I_{FDC} = 100 mA
Series Resistance	R_S		2		Ω	I_{FDC} = 100 mA
Diode Capacitance	C_O		50		pF	0 V, 1 MHz
Reverse Voltage	V_R	5	20		V	I_R = 100 µA
Thermal Resistance, Junction to Pin	$R\theta_{jp}$		170		°C/W	

HSDL-44XX Optical Characteristics at T_A = 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant On-Axis Intensity						
HSDL-4400	I_E	1	3 6 15	8	mW/sr	I_{FDC} = 50 mA I_{FDC} = 100 mA I_{FPK} = 250 mA
HSDL-4420	I_E	9	17 32 85	30	mW/sr	I_{FDC} = 50 mA I_{FDC} = 100 mA I_{FPK} = 250 mA
Radiant On-Axis Intensity Temperature Coefficient	$\Delta I_E/\Delta T$		-0.35 -0.35		%/°C	I_{FDC} = 50 mA I_{FDC} = 100 mA
Viewing Angle						
HSDL-4400	$2\theta_{1/2}$		110		deg	I_{FDC} = 50 mA
HSDL-4420	$2\theta_{1/2}$		24		deg	I_{FDC} = 50 mA
Peak Wavelength	λ_{PK}	850	875	900	nm	I_{FDC} = 50 mA
Peak Wavelength Temperature Coefficient	$\Delta\lambda/\Delta T$		0.25		nm/°C	I_{FDC} = 50 mA
Spectral Width at FWHM	$\Delta\lambda$		37		nm	I_{FDC} = 50 mA
Optical Rise and Fall Times, 10%-90%	t_r/t_f		40		ns	I_{FPK} = 50 mA
Bandwidth	f_c		9		MHz	I_{FDC} = 50 mA ± 10 mA

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HSDL-54xx Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Power Dissipation	P_{DISS}		150	mW
Reverse Voltage (I_R = 100 µA)	V_R		40	V
Operating Temperature	T_O	-40	85	°C
Storage Temperature	T_S	-55	100	°C
Junction Temperature	T_J		110	°C
Lead Solder Temperature [1.6 mm (0.063 in.) from body]			260/5 s	°C
Reflow Soldering Temperatures				
Convection IR			235/90 s	°C
Vapor Phase			215/180 s	°C

HSDL-54xx Electrical Characteristics at T_A = 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	V_F		0.8		V	I_{FDC} = 1 mA
Breakdown Voltage	V_{BR}			40	V	I_R = 100 µA, E_e = 0 mW/cm²
Reverse Dark Current	I_D		1	5	nA	V_R = 5 V, E_e = 0 mW/cm²
Series Resistance	R_S		2000		Ω	V_R = 5 V, E_e = 0 mW/cm²
Diode Capacitance	C_O		5		pF	V_R = 0 V, E_e = 0 mW/cm² f = 1 MHz
Open Circuit Voltage	V_{OC}		375		mV	E_e = 1 mW/cm² λ_{PK} = 875 nm
Temperature Coefficient of V_{OC}	$\Delta V_{OC}/\Delta T$		-2.2		mV/K	E_e = 1 mW/cm² λ_{PK} = 875 nm
Short Circuit Current	I_{SC}					E_e = 1 mW/cm² λ_{PK} = 875 nm
HSDL-5400			1.6		µA	
HSDL-5420			4.3		µA	
Temperature Coefficient of I_{SC}	$\Delta I_{SC}/\Delta T$		0.16		%/K	E_e = 1 mW/cm² λ_{PK} = 875 nm
Thermal Resistance, Junction to Pin	$R\theta_{jp}$		170		°C/W	

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HSDL-54xx Optical Characteristics at T_A = 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Photocurrent						E_e = 1 mW/cm²
HSDL-5400	I_{PH}	0.8	1.6		µA	λ_{PK} = 875 nm
HSDL-5420		3.0	6.0			V_R = 5 V
Temperature Coefficient of I_{PH}	$\Delta I_{PH}/\Delta T$		0.1		%/K	E_e = 1 mW/cm² λ_{PK} = 875 nm V_R = 5 V
Radiant Sensitive Area	A		0.15		mm²	
Absolute Spectral Sensitivity	S		0.5		A/W	E_e = 1 mW/cm² λ_{PK} = 875 nm V_R = 5 V
Viewing Angle						
HSDL-5400	$2\theta_{1/2}$		110		deg	
HSDL-5420			28			
Wavelength of Peak Sensitivity	λ_{PK}		875		nm	E_e = 1 mW/cm² V_R = 5 V
Spectral Bandwidth	$\Delta\lambda$		770-1000		nm	E_e = 1 mW/cm² V_R = 5 V
Quantum Efficiency	η		70		%	E_e = 1 mW/cm² λ_{PK} = 875 nm, V_R = 5 V
Noise Equivalent Power	NEP		6.2 x 10^{-15}		W/Hz$^{1/2}$	V_R = 5 V λ_{PK} = 875 nm
Detectivity	D		6.3 x 10^{12}		cm* Hz$^{1/2}$/W	V_R = 5 V λ_{PK} = 875 nm
Optical Rise and Fall Times, 10%-90%	t_r/t_f		7.5		ns	V_R = 5 V R_L = 1 kΩ λ_{PK} = 875 nm
Bandwidth	f_c		50		MHz	V_R = 5 V R_L = 1 kΩ λ_{PK} = 875 nm

Effective Date of Change:

1st Aug. 2023 to take new orders with lead time 24 weeks.

Please contact your Lite-On Technology Sales/Customer Service/Filed sales engineer or Contact Center (http://optoelectronics.liteon.com/en-us/about/contact-us.aspx) for any questions or support requirements. Please return any response as soon as possible, but not to exceed 30 days.