

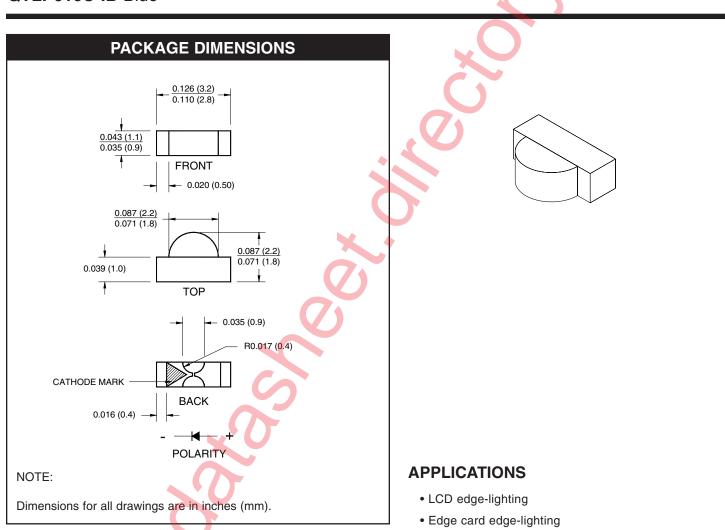
SEMICONDUCTOR®

- QTLP610C-R Red
- QTLP610C-E Orange
- QTLP610C-Y Yellow
- QTLP610C-AG Yellow-Green

QTLP610C-O Yellow-Orange

QTLP610C-IG True Green

QTLP610C-IB Blue



### DESCRIPTION

These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.

### FEATURES

- Small footprint 3.0(L) X 2.0(W) X 1.0(H) mm
- AllnGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- $\bullet$  Wide viewing angle of 120°
- Water clear optics
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel



SEMICONDUCTOR®

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

<b>D</b>		QTLP610C					
Parameter	Symbol	-R	-E	-0	-Y	-AG	Units
Continuous Forward Current	I <sub>F</sub>	30	30	30	25	30	mA
Peak Forward Current	In	160	160	160	120	160	mA
(f = 1.0 KHz, Duty Factor = $1/10$ )	IFM	100	100	100	120	100	110.4
Reverse Voltage (I <sub>R</sub> = 10 µA)	V <sub>R</sub>	5	5	5	5	5	V
Power Dissipation	PD	72	72	72	60	72	mW
Operating Temperature	T <sub>OPR</sub>	-40 to +85				°C	
Storage Temperature	T <sub>STG</sub>	-40 to +90				°C	
Lead Soldering Time	T <sub>SOL</sub>	260 for 5 sec				°C	

ABSOLUTE MAXIMUM RATINGS (TA =25°C Unless otherwise specified)						
Parameter		QTLP610C				
	Symbol	-IB	-IG	Units		
Continuous Forward Current	I <sub>F</sub>	30	30	mA		
Peak Forward Current	I <sub>FM</sub>	100	100			
(f = 1.0 KHz, Duty Factor = 1/10)		100	100	mA		
Reverse Voltage (I <sub>R</sub> = 10 µA)	V <sub>R</sub>	5	5	V		
Power Dissipation	PD	120	120	mW		
Operating Temperature	T <sub>OPR</sub>	-40	to +85	°C		
Storage Temperature	T <sub>STG</sub>	-40	) to +90	°C		
Lead Soldering Time	T <sub>SOL</sub>	260	for 5 sec	°C		



SEMICONDUCTOR®

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

		QTLP610C					
Part Number	Symbol	-R	-E	-0	-Y	-AG	Condition
Luminous Intensity (mcd)							
Minimum	Ι <sub>V</sub>	20	20	20	20	10	I <sub>F</sub> = 20mA
Typical		45	45	45	45	20	
Forward Voltage (V)							
Maximum	VF	2.4	2.4	2.4	2.4	2.4	I <sub>F</sub> = 20mA
Typical		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)	, .						
Peak	λ <sub>P</sub>	630	620	610	590	575	I <sub>F</sub> = 20mA
Dominant	λ <sub>D</sub>	624	615	605	589	573	
Spectral Line Half Width (nm)	Δλ	20	18	18	15	20	I <sub>F</sub> = 20mA
Viewing Angle (°)	2 <del>0</del> 1/2	120	120	120	120	120	I <sub>F</sub> = 20mA

ELECTRICAL / OPTICAL CHARACTERISTICS (TA =25°C)					
Part Number		QTI	_P610C		
	Symbol	-IB	-IG	Condition	
Luminous Intensity (mcd)					
Minimum	Iv	20	60	I <sub>F</sub> = 20mA	
Typical		30	100		
Forward Voltage (V)					
Maximum	V <sub>F</sub>	4.0	4.0	I <sub>F</sub> = 20mA	
Typical		3.5	3.5		
Wavelength (nm)					
Peak	λ <sub>P</sub>	465	520	$I_F = 20 mA$	
Dominant	λ <sub>D</sub>	470	525		
Spectral Line Half Width (nm)	Δλ	25	35	I <sub>F</sub> = 20mA	
Viewing Angle (°)	201/ <sub>2</sub>	120	120	I <sub>F</sub> = 20mA	



SEMICONDUCTOR®

# SUPER BRIGHT RIGHT ANGLE

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

### TYPICAL PERFORMANCE CURVES (QTLP610C-R, -E, -O, -Y and -AG)

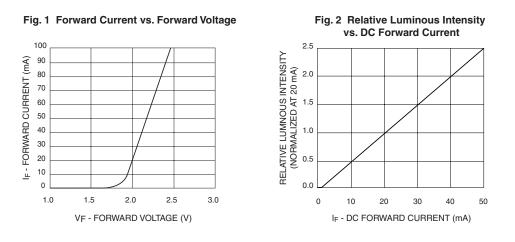


Fig. 3 Relative Intensity vs. Peak Wavelength

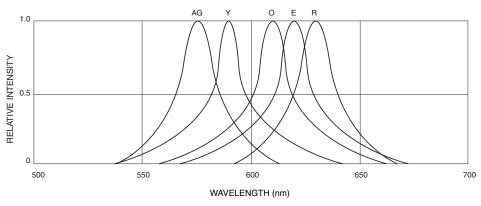
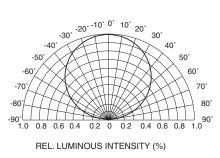
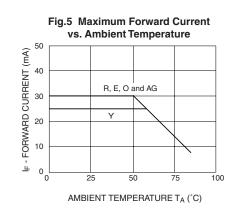


Fig.4 Radiation Diagram







SEMICONDUCTOR®

# SUPER BRIGHT RIGHT ANGLE

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

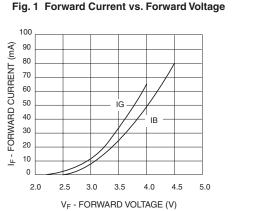
QTLP610C-Y Yellow

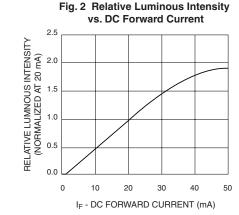
QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

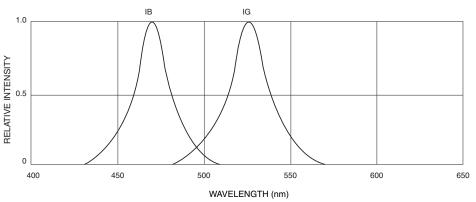
QTLP610C-IB Blue

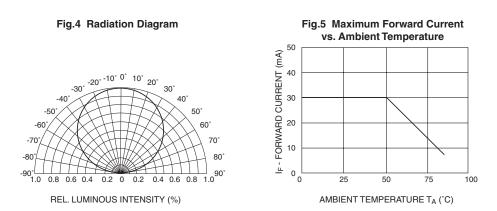
### TYPICAL PERFORMANCE CURVES (QTLP610C-IG and -IB)













SEMICONDUCTOR®

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

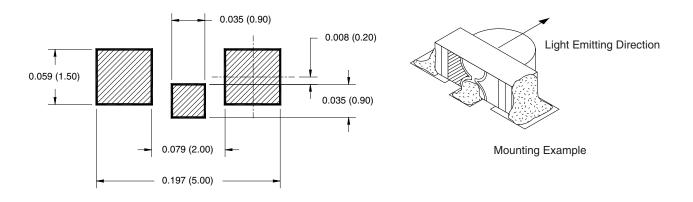
QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

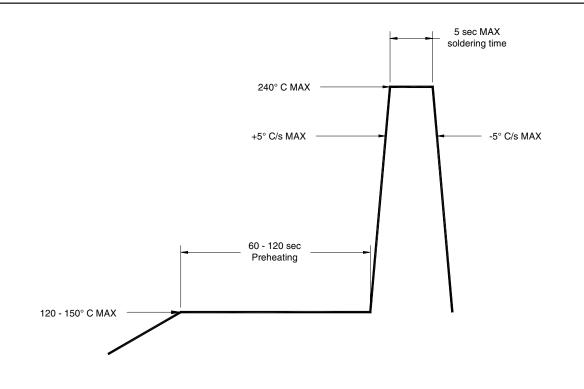
QTLP610C-IG True Green

QTLP610C-IB Blue

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### **RECOMMENDED IR REFLOW SOLDERING PROFILE**





SEMICONDUCTOR®

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

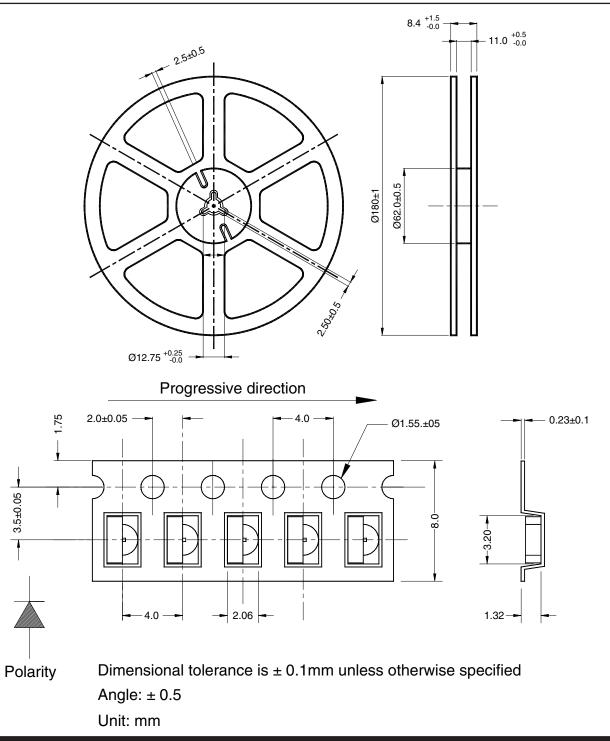
QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

### TAPE AND REEL DIMENSIONS





SEMICONDUCTOR®

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

#### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

- Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body,or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in labeling, can be reasonably expected to result in a significant injury of the user.
- 2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Product Folder - Fairchild P/N	QTLP610C-O - Product information		
Fairchild Semiconductor		-f	tric   Cross Reference
find products	Home >> Find products >>		
Products groups Analog and Mixed	QTLP610C-O Product information		Related Links Request samples
Signal Discrete Interface Logic Microcontrollers	Contents <u>General description   Features   Applications  </u> <u>Product status/pricing/packaging</u>	Datasheet <u>Download this</u> <u>datasheet</u> PDF	Dotted line How to order products Dotted line Product Change Notices (PCNs)
<u>Non-Volatile</u> <u>Memory</u> <u>Optoelectronics</u> Markets and	General description	e-mail this datasheet	Support Dotted line Distributor and field sales representatives
applications <u>New products</u> <u>Product selection and</u> <u>parametric search</u> <u>Cross-reference</u>	These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.	This page <u>Print version</u>	Dotted line Quality and reliability Dotted line Design tools
search technical information buy products	back to top Features		
technical support my Fairchild	<ul> <li>Small footprint - 3.0(L) x 2.0(W) x 1.0(H) mm</li> </ul>		

back to top

and -AG

• Water clear optics

2,000 units per reel

company

#### Applications

- LCD edge-lighting
- Edge card edge-lighting

• AllnGaP technology for -R, -E, -O, -Y

• InGaN/SiC technology for -IG and -IB

• Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel;

• Wide viewing angle of 120°

#### Product Folder - Fairchild P/N QTLP610C-O - Product information

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Packing method
QTLP610COTR	Full Production	\$0.071	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

file:///C /PDF/QTLP610C-R.h	tml		
Fairchild Semiconductor		SEARCH	Product Folders and Applica
		Ishace_	Product Folders and CANDUCA
find products Products groups Analog and Mixed Signal Discrete Interface Logic Microcontrollers Non-Volatile Memory Optoelectronics Markets and	Home >> Find products >>         QTLP610C-R         Red Surface Mount LED Lamp - Super Bright         Right Angle         Contents         General description   Features   Applications           Product status/pricing/packaging         General description	Datasheet <u>Download this</u> <u>datasheet</u> <u>PDF</u> <u>e-mail this datas</u> <u>[E-</u>	Related Links         Request samples         Dotted line         How to order products         Dotted line         Product Change Notices         (PCNs)         Dotted line         Support         Dotted line         Sheet         Distributor and field sales         representatives
applications New products Product selection and parametric search Cross-reference search	These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.	This page Print version	Dotted line Quality and reliability Dotted line Design tools
technical information	back to top		
buy products	Features		
technical support			
my Fairchild	• Small footprint - 3.0(L) x 2.0(W) x 1.0(H) mm	_	
company	<ul> <li>AllnGaP technology for -R, -E, -O, -Y and -AG</li> <li>InGaN/SiC technology for -IG and -IB</li> <li>Wide viewing angle of 120°</li> <li>Water clear optics</li> <li>Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel</li> </ul>		

### back to top

Applications

- LCD edge-lighting
- Edge card edge-lighting

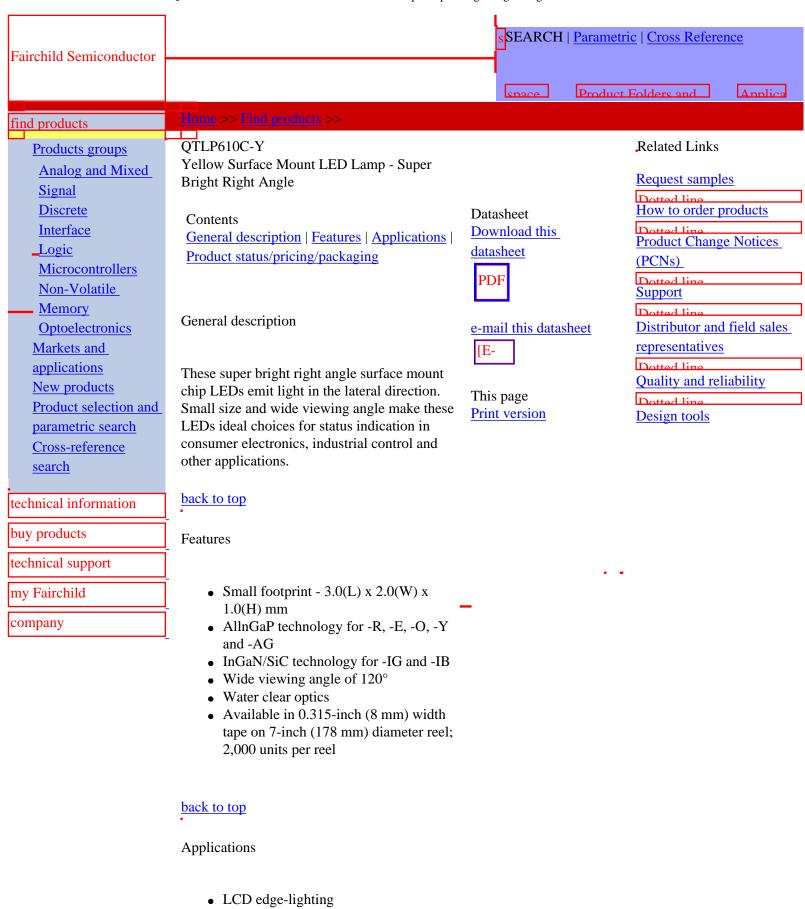
Product	Product status	Pricing*	Package type	Packing method
QTLP610CRAGTR	Full Production	\$0.159	SMD, Right Angle	TAPE REEL
QTLP610C-R.TR	Full Production	\$0.088	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

### back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Product Folder - Fairchild P/N QTLP610C-Y - Yellow Surface Mount LED Lamp - Super Bright Right Angle



• Edge card edge-lighting

back to top

Product	Product status	Pricing*	Package type	Packing method
QTLP610C-Y.TR	Full Production	\$0.088	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

Product Folder - Fairchild P/N	QTLP610C-IG - Product information		
Fairchild Semiconductor		SSEARCH   <u>Paramet</u>	ric   Cross Reference
find products Products groups Analog and Mixed	Home >> Find products >> QTLP610C-IG Product information		Related Links
Signal Discrete Interface Logic Microcontrollers	Contents General description   Features   Applications   Product status/pricing/packaging	Datasheet <u>Download this</u> <u>datasheet</u> PDF	Dotted line How to order products Product Change Notices (PCNs) Dotted line
Non-Volatile Memory Optoelectronics Markets and applications New products Product selection and parametric search Cross-reference	General description These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.	e-mail this datasheet [E- This page <u>Print version</u>	Support Dotted line Distributor and field sales representatives Dotted line Quality and reliability Dotted line Design tools
search technical information buy products	back to top Features		
technical support my Fairchild company	<ul> <li>Small footprint - 3.0(L) x 2.0(W) x 1.0(H) mm</li> <li>AllnGaP technology for -R, -E, -O, -Y and -AG</li> </ul>	-	·

- InGaN/SiC technology for -IG and -IB
- Wide viewing angle of 120°
- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

#### back to top

#### Applications

- LCD edge-lighting
- Edge card edge-lighting

back to top

#### Product Folder - Fairchild P/N QTLP610C-IG - Product information

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Packing method
QTLP610CIGTR	Full Production	\$0.65	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

my Fairchild

company

file:///C//PDF/Q1LP610C-IB.	ntml		
Fairchild Semiconductor		-ſ	tric   Cross Reference
		enace Produc	et Folders and Annlica
find products	Home >> Find products >>		
Products groupsAnalog and MixedSignalDiscreteInterfaceLogicMicrocontrollersNon-VolatileMemoryOptoelectronicsMarkets andapplicationsNew productsProduct selection andparametric searchCross-referencesearch	QTLP610C-IB Product information Contents General description   Features   Applications   Product status/pricing/packaging General description These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.	Datasheet Download this datasheet PDF e-mail this datasheet [E- This page Print version	Related Links   Request samples   Dotted line   How to order products   Dotted line   Product Change Notices   (PCNs)   Dotted line   Support   Dotted line   Support   Dotted line   Quality and reliability   Dotted line   Dotted line   Dotted line   Distributor and field sales   representatives   Dotted line   Dotted line   Dotted line   Dotted line   Dotted line   Dotted line   Dotted line
technical information	•		
buy products	Features		
technical support	• Small footprint - 3.0(L) x 2.0(W) x		•

back to top

back to top

Applications

1.0(H) mm

• Water clear optics

2,000 units per reel

• LCD edge-lighting • Edge card edge-lighting

and -AG

• AllnGaP technology for -R, -E, -O, -Y

• InGaN/SiC technology for -IG and -IB

• Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel;

• Wide viewing angle of 120°

Product	Product status	Pricing*	Package type	Packing method
QTLP610CIBTR	Full Production	\$0.54	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

file:///C /PDF/QTLP610C-E.h	tml		
Fairchild Semiconductor		-ť	etric   Cross Reference
find products	Home >> Find products >>		
Products groups         Analog and Mixed         Signal         Discrete         Interface         Logic         Microcontrollers         Non-Volatile         Memory         Optoelectronics         Markets and         applications         New products         Product selection and         parametric search         Cross-reference         search	QTLP610C-EOrange Surface Mount LED Lamp - SuperBright Right AngleContentsGeneral description   Features   Applications   Product status/pricing/packagingGeneral descriptionGeneral descriptionThese super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.	Datasheet <u>Download this</u> <u>datasheet</u> <u>PDF</u> <u>e-mail this datasheet</u> <u>[E-</u> This page <u>Print version</u>	Related Links   Request samples   Dotted line   How to order products   Dotted line   Product Change Notices   (PCNs)   Dotted line   Support   Dotted line   Support   Dotted line   Distributor and field sales   representatives   Dotted line   Quality and reliability   Design tools
technical information	back to top		
buy products	Features		
technical support			
my Fairchild	• Small footprint - 3.0(L) x 2.0(W) x 1.0(H) mm	_	
company	<ul> <li>AllnGaP technology for -R, -E, -O, -Y and -AG</li> <li>InGaN/SiC technology for -IG and -IB</li> <li>Wide viewing angle of 120°</li> <li>Water clear optics</li> <li>Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel;</li> </ul>		

## back to top

Applications

• LCD edge-lighting

2,000 units per reel

• Edge card edge-lighting

back to top

Product	Product status	Pricing*	Package type	Packing method
QTLP610C-E.TR	Full Production	\$0.088	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>

	.11(111		
Fairchild Semiconductor			etric   Cross Reference
find products	Home >> Find products >>		
Products groups         Analog and Mixed         Signal         Discrete         Interface         Logic         Microcontrollers         Non-Volatile         Memory         Optoelectronics         Markets and         applications         New products         Product selection and         parametric search         Cross-reference         search	QTLP610C-AG Product informationContents General description   Features   Applications   Product status/pricing/packagingGeneral descriptionGeneral descriptionThese super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.back to top	Datasheet Download this datasheet PDF e-mail this datasheet [E- This page Print version	Related Links         Request samples         Dotted line         How to order products         Dotted line         Product Change Notices         (PCNs)         Dotted line         Support         Dotted line         Support         Dotted line         Distributor and field sales         representatives         Dotted line         Quality and reliability         Design tools
technical information			
buy products	Features		
technical support	• Small footprint - 3.0(L) x 2.0(W) x		•

my Fairchild

company

#### Applications

back to top

• LCD edge-lighting

1.0(H) mm

• Water clear optics

2,000 units per reel

and -AG

• AllnGaP technology for -R, -E, -O, -Y

• InGaN/SiC technology for -IG and -IB

• Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel;

• Wide viewing angle of 120°

• Edge card edge-lighting

back to top

Product	Product status	Pricing*	Package type	Packing method
QTLP610CAGTR	Full Production	\$0.115	SMD, Right Angle	TAPE REEL

\* 1,000 piece Budgetary Pricing

back to top

<u>Home</u> | <u>Find products</u> | <u>Technical information</u> | <u>Buy products</u> | <u>Support</u> | <u>Company</u> | <u>Contact us</u> | <u>Site index</u> | <u>Privacy policy</u>