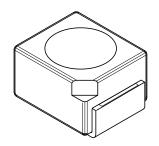


QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

PACKAGE DIMENSIONS 0.130 (3.3) 0.114 (2.9) Ø0.094 [Ø2.4] 0.118 (3.0) 0.091 (2.3) 0.102 (2.6) 0.083 (2.1) TOP CATHODE 0.024 (0.6) 0.016 (0.4) 0.083 (2.1) 0.067 (1.7) 0.006 (0.15) 0.146 (3.7) 0.130 (3.3) SIDE CATHODE 0.032 (0.8) -**BOTTOM** → -**POLARITY** NOTE: Dimensions for all drawings are in inches (mm).



APPLICATIONS

- · Automotive interior lighting
- Status indication for consumer electronics and office equipment

DESCRIPTION

These surface mount LEDs are designed with flat top and sides for the ease of pick-and-place by automatic placement equipment. They are compatible with convective IR and vapor phase reflow soldering. The package size and configuration conform to EIA-535 BAAC standard specification for case size 3528 tantalum capacitor. These LEDs are ideal for backlighting and optical coupling into light pipes.

FEATURES

- AllnGaP technology for -T, -S, -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG, -IB and -IW
- 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



QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green

QTLP670C-IW White

QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

ABSOLUTE MAXIMUM RAT	ABSOLUTE MAXIMUM RATINGS (TA =25°C Unless otherwise specified)								
		QTLP670C							
Parameter	Symbol	-T	-S	-R	-E	-0	-Y	-AG	Units
Continuous Forward Current	I _F	30	30	30	30	30	25	30	mA
Peak Forward Current		100	100	100	100	100	100	100	Л
(f = 1.0 KHz, Duty Factor = 1/10)	IFM	160	160	160	160	160	120	160	mA
Reverse Voltage (I _R = 10 μA)	V _R	5	5	5	5	5	5	5	V
Power Dissipation	P _D	72	72	72	72	72	60	72	mW
Junction Temperature	TJ	100	100	100	100	100	100	100	°C
Thermal Resistance (Junction-Air)	R _{th JA}	500	500	500	500	500	500	500	K/W
Operating Temperature	T _{OPR}	-40 to +95 °C					°C		
Storage Temperature	T _{STG}	-40 to +100 °C				°C			
Lead Soldering Time	T _{SOL}			2	260 for 5 s	ec			°C

ABSOLUTE MAXIMUM RATINGS (Ta =25°C Unless otherwise specified)							
			QTLP670C				
Parameter	Symbol	-IB	-IG	-IW	Units		
Continuous Forward Current	IF	30	30	20	mA		
Peak Forward Current		100	100	70	Л		
(f = 1.0 KHz, Duty Factor = 1/10)	IFM	100	100	70	mA		
Reverse Voltage (I _R = 10 μA)	V _R	5	5	5	V		
Power Dissipation	P _D	120	120	80	mW		
Junction Temperature	TJ	125	125	125	°C		
Thermal Resistance Junction-Air	R _{th JA}	400	400	400	K/W		
Operating Temperature	T _{OPR}	-40 to +95					
Storage Temperature	T _{STG}	-40 to +100 °C					
Lead Soldering Time	T _{SOL}	260 for 5 sec °C					



QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

ELECTRICAL / OPTICAL CHARACTERISTICS (TA =25°C)									
				C	TLP670C				
Part Number	Symbol	-T	-S	-R	-E	-0	-Y	-AG	Condition
Luminous Intensity (mcd)									
Minimum	I _V	20	25	25	25	25	25	15	$I_F = 20mA$
Typical	1	45	65	65	65	65	65	30	
Forward Voltage (V)									
Maximum	V _F	2.4	2.4	2.4	2.4	2.4	2.4	2.4	$I_F = 20mA$
Typical		2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)									
Peak	λ _P	650	640	630	620	610	590	575	$I_F = 20mA$
Dominant	λ _D	640	632	624	615	605	589	573	
Spectral Line Half Width (nm)	Δλ	20	20	20	18	18	15	20	$I_F = 20mA$
Viewing Angle (°)	201/2	120	120	120	120	120	120	120	$I_F = 20mA$

ELECTRICAL / OPTICAL CHARACTERISTICS (TA =25°C)							
		QTLP670C					
Part Number	Symbol	-IB	-IG	-IW	Condition		
Luminous Intensity (mcd)							
Minimum	I _V	30	75	100	$I_F = 20mA$		
Typical		60	115	250	1		
Forward Voltage (V)							
Maximum	V _F	4.0	4.0	4.0	I _F = 20mA		
Typical		3.5	3.5	3.5	1		
Wavelength (nm)							
Peak	λ _P	465	520	_	$I_F = 20mA$		
Dominant	λ _D	470	525	_	1		
Chromaticity Coordinate	x,y	_	_	x = 0.30, y = 0.31	$I_F = 20mA$		
Spectral Line Half Width (nm)	Δλ	25	35	_	$I_F = 20mA$		
Viewing Angle (°)	201/ ₂	120	120	120	$I_F = 20mA$		



QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

TYPICAL PERFORMANCE CURVES (QTLP670C-T, -S, -R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

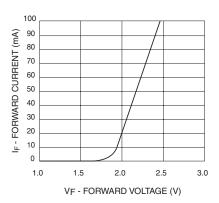


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

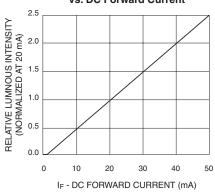


Fig. 3 Relative Intensity vs. Peak Wavelength

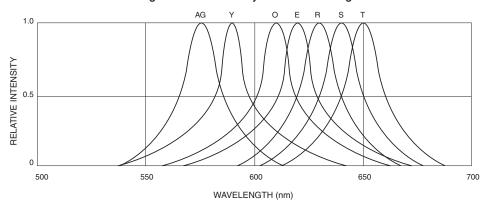


Fig.4 Radiation Diagram

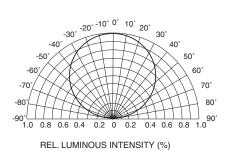
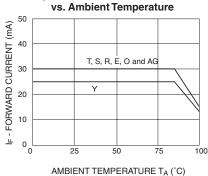


Fig.5 Maximum Forward Current

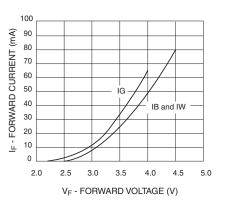




QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

TYPICAL PERFORMANCE CURVES (QTLP670C-IG, -IB and -IW)

Fig. 1 Forward Current vs. Forward Voltage



IF - DC FORWARD CURRENT (mA)

Fig. 3 Relative Intensity vs. Peak Wavelength

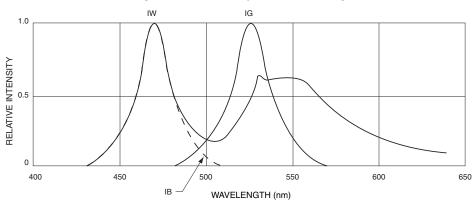


Fig.4 Radiation Diagram

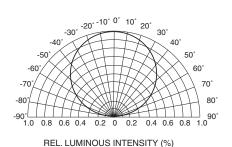
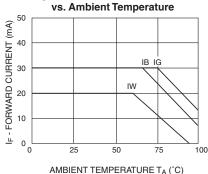


Fig.5 Maximum Forward Current

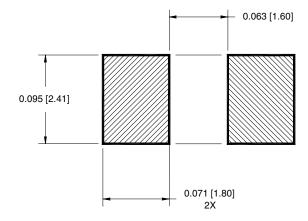


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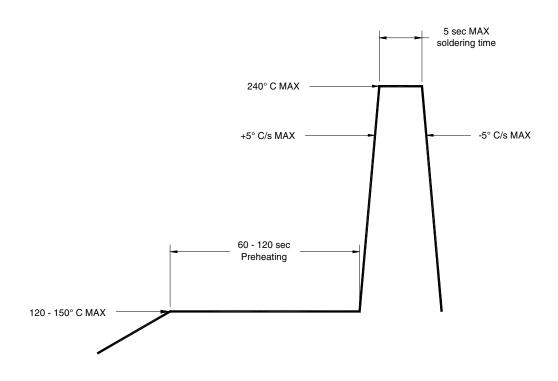


QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



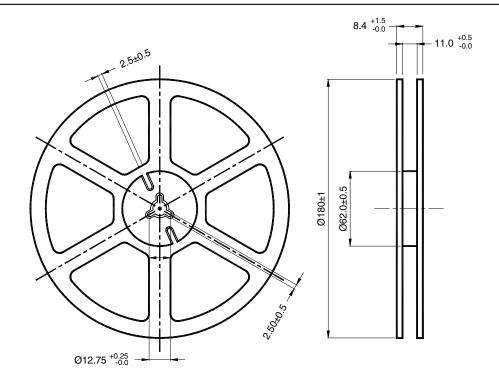
RECOMMENDED IR REFLOW SOLDERING PROFILE

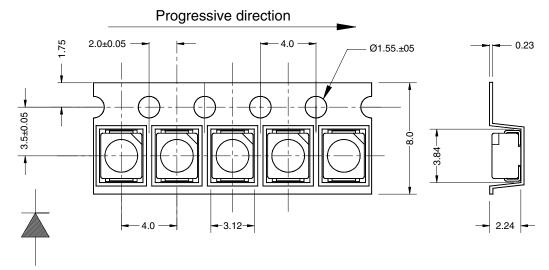




QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green QTLP670C-IW White QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

TAPE AND REEL DIMENSIONS





Polarity Dimensional tolerance is ± 0.1 mm unless otherwise specified

Angle: ± 0.5 Unit: mm



QTLP670C-T Red QTLP670C-E Orange QTLP670C-AG Yellow-Green

QTLP670C-IW White

QTLP670C-S Red QTLP670C-O Yellow-Orange QTLP670C-IG True Green QTLP670C-R Red QTLP670C-Y Yellow QTLP670C-IB Blue

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- 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.

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	Applications		

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

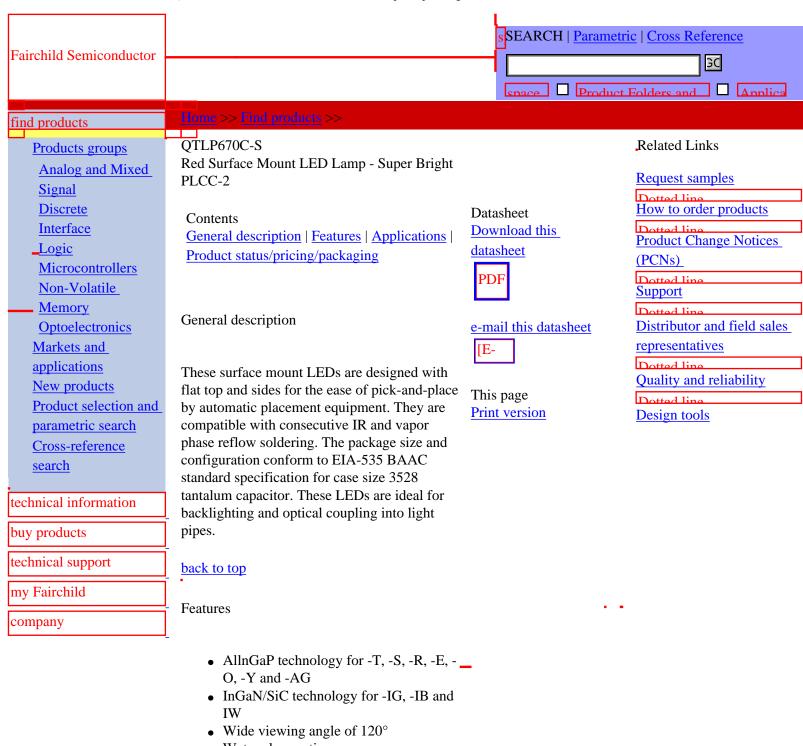
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670COTR	Full Production	\$0.095	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

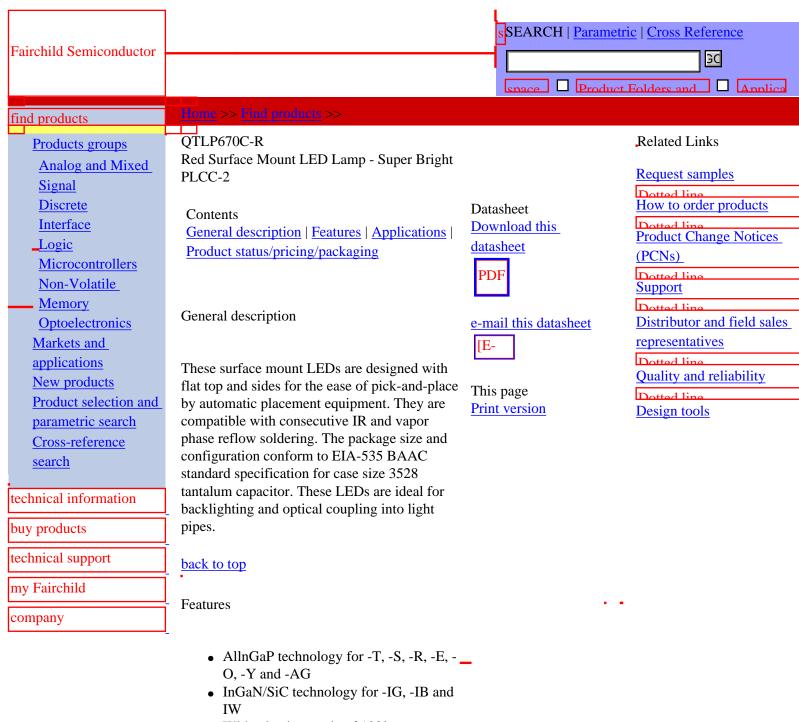
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670CSTR	Full Production	\$0.095	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- 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

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

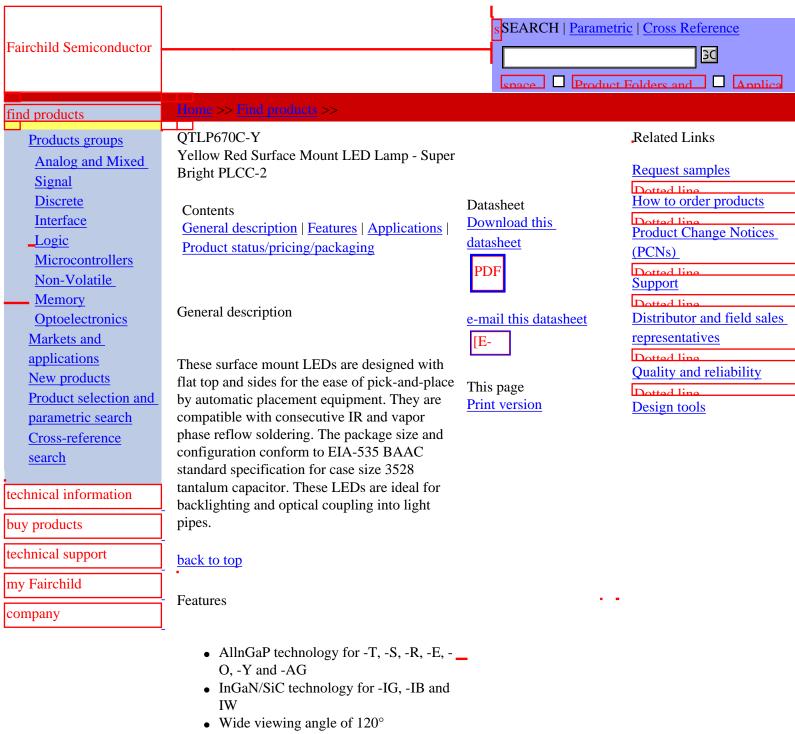
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670C-R.TR	Full Production	\$0.108	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

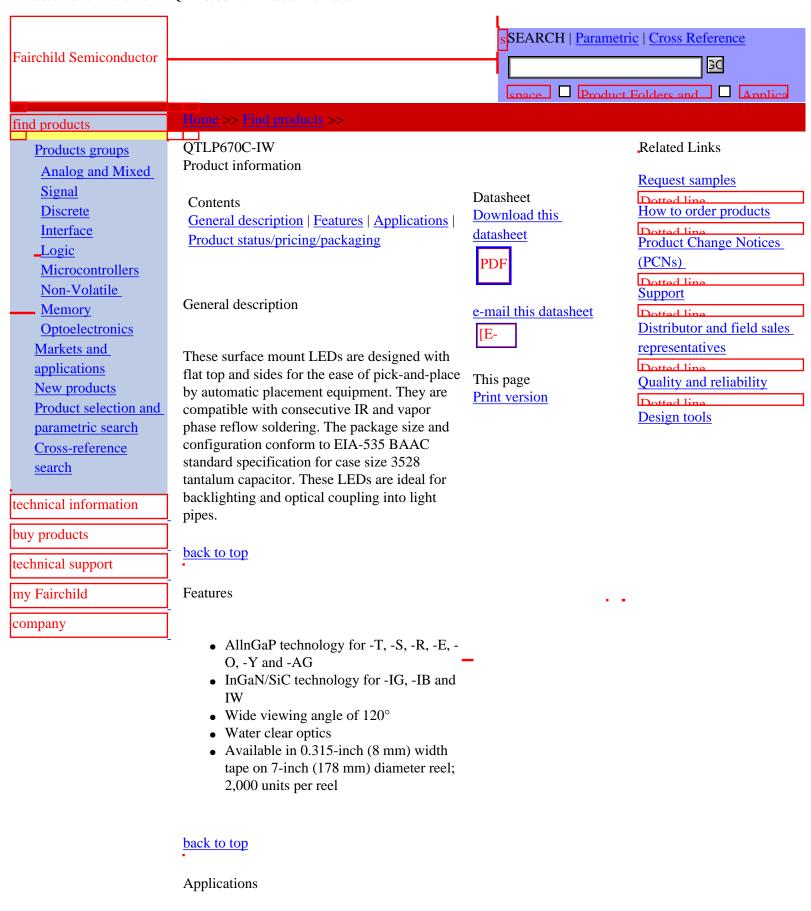
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670C-Y.TR	Full Production	\$0.095	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Automotive interior lighting
- Status indication for consumer electronics and office equipment

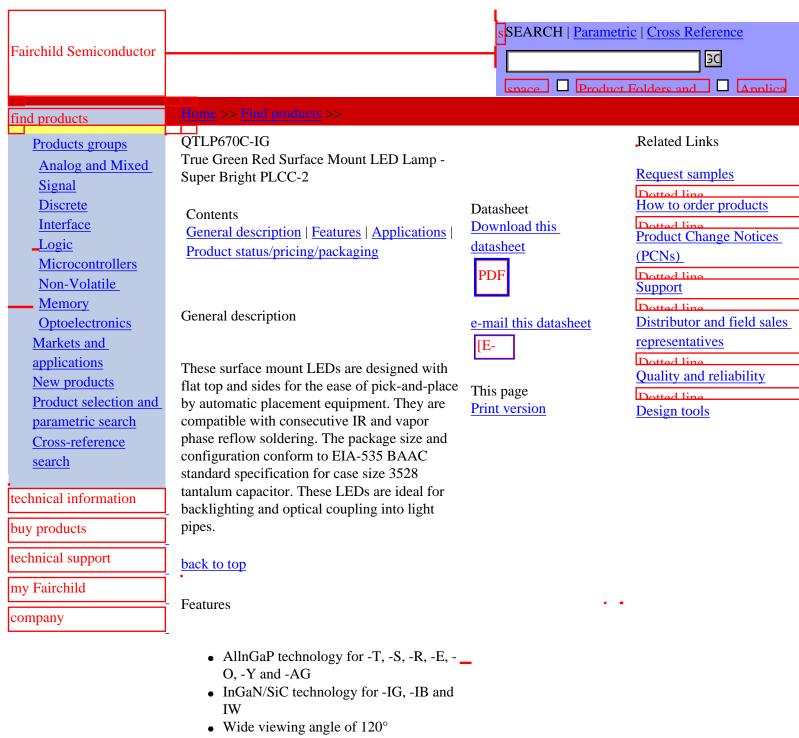
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670CIWTR	Full Production	\$0.66	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670CIGTR	Full Production	\$0.66	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Automotive interior lighting
- Status indication for consumer electronics and office equipment

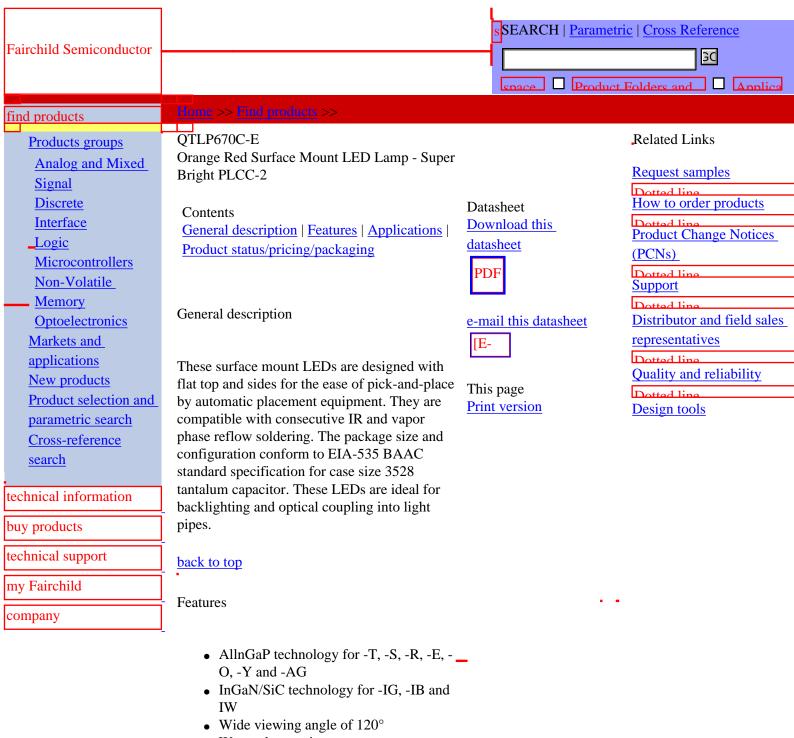
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670CIBTR	Full Production	\$0.56	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

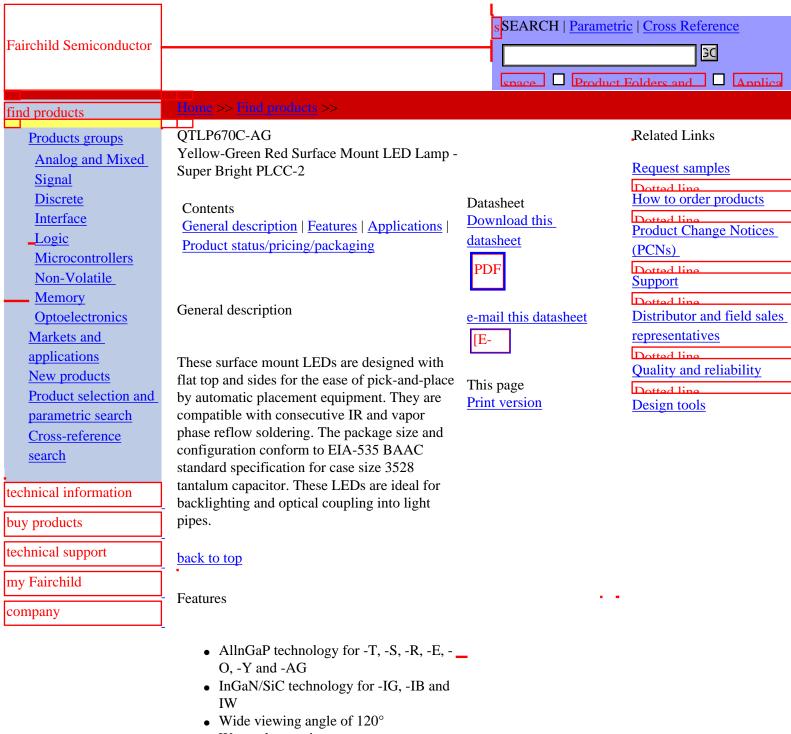
Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670C-E.TR	Full Production	\$0.095	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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- Water clear optics
- Available in 0.315-inch (8 mm) width tape on 7-inch (178 mm) diameter reel; 2,000 units per reel

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
QTLP670CAGTR	Full Production	\$0.115	PLCC	2	TAPE REEL

^{* 1,000} piece Budgetary Pricing

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