

The documentation and process conversion measures necessary to comply with this revision shall be completed by 19 July 2016.

INCH-POUND

MIL-PRF-19500/519F
19 April 2016
SUPERSEDING
MIL-PRF-19500/519E
19 December 2013

PERFORMANCE SPECIFICATION SHEET

LIGHT EMITTING DIODE, RED, THROUGH-HOLE MOUNT AND PANEL MOUNT ASSEMBLY, CLEAR AND DIFFUSED LENS, TYPES 1N6092, 1N6609, M19500/51901, M19500/51902, M19500/51903 AND M19500/51904, QUALITY LEVELS JAN AND JANTX

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and [MIL-PRF-19500](#).

1. SCOPE

1.1 Scope. This specification covers the performance requirements for hermetically-sealed red discrete and panel mount light emitting diodes. Two levels of product assurance are provided for each device type as specified in [MIL-PRF-19500](#).

1.2 Package outlines. The device packages for the device types are a modified TO-46 in accordance with [figure 1](#) and panel mount assembly in accordance with [figure 2](#).

1.3 Maximum ratings.

I_F	I_P (1)	I_{ptr} (2)	$V_{(BR)}$ (3)	P_{FM} (4)	T_{OP} and T_{STG}
<u>mA dc</u>	<u>mA (pk)</u>	<u>A (pk)</u>	<u>V dc</u>	<u>mW (pk)</u>	<u>°C</u>
35	60	1.0	5	120	-65 to +100

- (1) Pulse width maximum 0.5 ms and $P_{FM(AV)}$ less than P_F .
- (2) $I_{ptr} = 1 \mu s$ pulse width, 300 pulses per second (pps).
- (3) $I_R = 10 \mu A$ dc.
- (4) Derate linearly from +50°C at 2.4 mW/°C.

1.4 Characteristics, radiometric (physical), and photometric (visual).

Limits	I_{V1} $I_F = 20 \text{ mA dc}$ $\Theta = 0 \text{ degrees}$		I_{V2} $I_F = 20 \text{ mA dc}$ $\Theta = 30 \text{ degrees}$	V_F $I_F = 20 \text{ mA dc}$	λ_V (wave length)	I_R $V_R = 3 \text{ V}$	C $V_R = 0$ $f = 1 \text{ MHz}$	Color
	<u>mcd</u>	<u>mcd</u>	<u>V dc</u>	<u>nm</u>	<u>μA dc</u>	<u>pF</u>		
Min	3.0 (1)	20.0 (2)	1.5	3.0	590	1	100	Red
Max					695			

- (1) Applies to diffused lens types (JAN1N6092, JANTX1N6092, JANM19500/51901, and JANTXM19500/51902).
- (2) Applies to clear lens types (JAN1N6609, JANTX1N6609, JANM19500/51903, and JANTXM19500/51904).

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAC, P.O. Box 3990, Columbus, OH 43218-3990, or emailed to Semiconductor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

AMSC N/A

FSC 5980



1.5 Part or Identifying Number (PIN). The PIN is in accordance with [MIL-PRF-19500](#), and as specified herein. See [6.8](#) for PIN construction example and [6.9](#) for a list of available PINs.

1.5.1 JAN certification mark and quality level. The JAN certification mark and quality level designators for encapsulated devices that are applicable for this specification sheet from the lowest to the highest level are as follows: "JAN" and "JANTX".

1.5.2 Device types. There are two different designation system used for the device types of red LEDs covered by this specification sheet. Listed below are the specifics of the device types available under the two systems.

1.5.2.1 Component designations. The component designations system is a JEDEC based system that uses the first number and letter symbol "1N" and the second number symbols "6092" and "6609".

1.5.2.2 Specification designations. The second is a military PIN based designation system that uses "M19500/" followed by the specification sheet number "519" and a sequential two digit number "01" through "04".

Designator	Lens type	Package type	Quality levels
1N6092	Diffused	Through-hole mount	JAN and JANTX
1N6609	Clear	Through-hole mount	JAN and JANTX
M19500/51901	Diffused	Panel mount assembly	JAN only
M19500/51902	Diffused	Panel mount assembly	JANTX only
M19500/51903	Clear	Panel mount assembly	JAN only
M19500/51904	Clear	Panel mount assembly	JANTX only

1.5.3 Lens types. There are two lens types available, diffused and clear. See [6.5](#) and [figures 3 and 4](#) for the relative luminous intensity of the two lens types. The clear lens types are considered sunlight viewable and are for applications requiring readability in bright sunlight (see [6.5.2](#)).

1.5.4 Suffix symbols. Suffix symbols are not applicable for this specification sheet.

1.5.5 Lead finish. The lead finishes applicable to this specification sheet are listed on [QPDSIS-19500](#).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections [3](#) and [4](#) of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections [3](#) and [4](#) of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

[MIL-PRF-19500](#) – Semiconductor Devices, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

[MIL-STD-750](#) – Test Methods for Semiconductor Devices.

(Copies of these documents are available online at <http://quicksearch.dla.mil>.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The individual item requirements shall be as specified in [MIL-PRF-19500](#) and as modified herein.

3.2 Qualification. Devices furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturer's list (QML) before contract award (see [4.2](#) and [6.3](#)).

3.3 Abbreviations, symbols, and definitions. Abbreviations, symbols, and definitions used herein shall be as specified in [MIL-PRF-19500](#) and herein.

I_P	Peak operating forward pulse current.
I_{ptr}	Peak transient forward current.
I_V	Luminous intensity (the subscript V is used to designate a photometric or visual quantity to differentiate from I as used herein for current).
λ_V	Peak radiometric wavelength of diode light emission.
mcd	Milli-candela; the candela is a unit of luminous intensity defined such that the luminance of a blackbody radiator at the temperature of solidification of platinum is 60 candelas per square centimeter.
Θ	The angle at or off the axis of symmetry of a light source at which luminous intensity is measured.

3.4 Interface and physical dimensions. The interface requirements and physical dimensions shall be as specified in [MIL-PRF-19500](#) and on [figures 1](#) and [2](#).

3.4.1 Lead finish. Unless otherwise specified, the lead finish shall be solderable as defined in [MIL-PRF-19500](#), [MIL-STD-750](#) and herein. Where a choice of lead finish is desired, it shall be specified in the acquisition document (see [6.2](#)).

3.4.2 Polarity. The polarity of the device types shall be as shown on [figures 1](#) and [2](#).

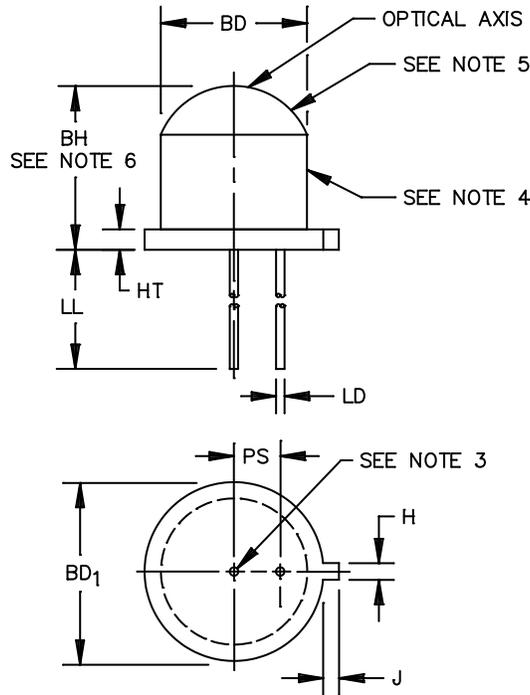
3.4.3 Terminal lead length. Terminal lead lengths other than that specified on [figures 1](#) and [2](#) may be furnished when so stipulated in the acquisition document (see [6.2](#)) where the devices covered herein are required directly for particular equipment-circuit installation or for automatic-assembly-technique programs.

3.5 Marking. Devices shall be marked as specified in [MIL-PRF-19500](#).

3.6 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in [1.3](#), [1.4](#), and [tables I](#) and [II](#) herein.

3.7 Electrical test requirements. The electrical test requirements shall be the subgroups specified in [tables I](#) and [II](#) herein.

3.8 Workmanship. Devices shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

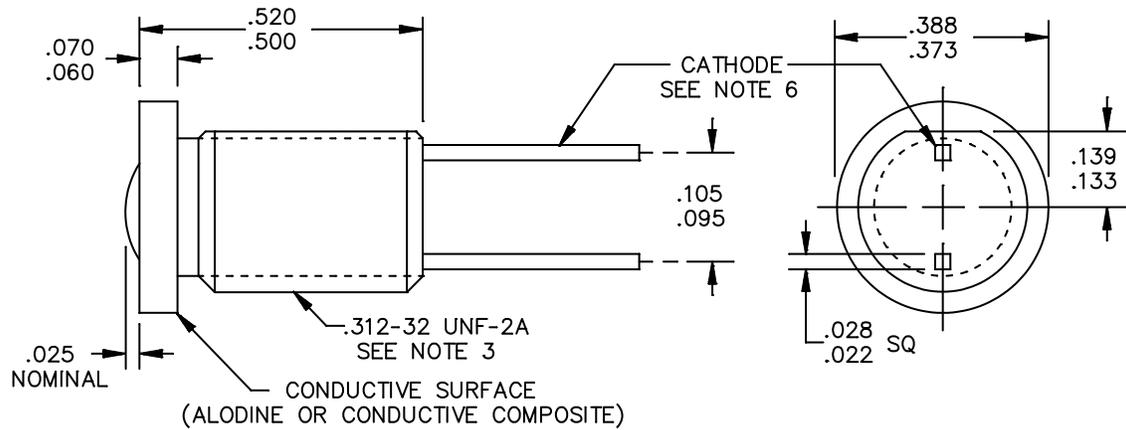


LTR	Dimensions				LTR	Dimensions			
	Inches		Millimeters			Inches		Millimeters	
	Min	Max	Min	Max		Min	Max	Min	Max
BD	.176	.190	4.47	4.83	J	.032	.042	0.81	1.07
BD_1	.200	.220	5.08	5.59	LD	.016	.019	0.41	0.48
BH	.180	.225	4.57	5.72	LL	.970	1.030	24.64	26.16
H	.035	.045	0.89	1.14	PS	.045	.055	1.14	1.40
HT	.013	.024	0.33	0.61					

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Cathode lead; both leads isolated from case.
4. Glass/metal hermetic can.
5. Colored lens or clear glass lens (see 6.2).
6. For sunlight viewable LEDs, dimension BH is .213 inch (5.41 mm) minimum and .260 inch (6.60 mm) maximum (see 6.2).
7. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

FIGURE 1. Physical dimensions for types JAN1N6092, JANTX1N6092, JAN1N6609, and JANTX1N6609.



Inches	mm	Inches	mm
.022	0.56	.133	3.38
.025	0.64	.139	3.53
.028	0.71	.373	9.47
.060	1.52	.388	9.86
.070	1.78	.500	12.70
.095	2.41	.520	13.21
.105	2.67	.583	14.81

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. The panel mount sleeve is either black conductive composite with a tensile strength of 35,000 psi and surface resistivity of 100 ohms per square, black anodized aluminum, or black finished zinc.
4. Mounting hardware, which includes one lock washer and one hex nut, is included with each panel mountable hermetic solid state lamp.
5. Use of metric drill size 8.20 millimeters or letter gauge drill size P (.323 inch, 8.20 mm) is recommended for producing hole in the panel for panel mounting.
6. Both leads are isolated from the panel mount by nonconductive potting. Lead length is .500 inch (12.70 mm) minimum, .583 inch (14.81 mm) maximum.
7. Conductive surface may extend to threaded area.
8. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

FIGURE 2. Physical dimensions for types JANM19500/51901, JANTXM19500/51902, JANM19500/51903, and JANTXM19500/51904 panel mount assemblies.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. Qualification inspection (see 4.2).
- b. Screening (see 4.3).
- c. Conformance inspection (see 4.4 and tables I and II).

4.2 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-19500 and as specified herein.

4.2.1 Group E qualification. Group E inspection shall be performed for qualification or re-qualification only. In case qualification was awarded to a prior revision of the specification sheet that did not request the performance of table III tests, the tests specified in table III herein that were not performed in the prior revision shall be performed on the first inspection lot of this revision to maintain qualification.

4.3 Screening (quality level JANTX only). Screening shall be in accordance with table E-IV of MIL-PRF-19500 and as specified herein. The following measurements shall be made in accordance with table I herein. Devices that exceed the limits of table I herein shall not be acceptable.

Screen	Measurements
	JANTX level
2	As given, except condition shall be 24 hours minimum at maximum rated storage temperature.
3a	$T_{\text{upper extreme}} = 100^{\circ}\text{C}, +0^{\circ}\text{C}, -3^{\circ}\text{C}.$
7	As given, except for the fine leak test, condition G, testing 2 hours after pressurization is acceptable and for the gross leak test, the device temperature shall be maintained at $100^{\circ}\text{C} \pm 5^{\circ}\text{C}.$
9 and 10	Not applicable.
11	I_{V1}, V_F
12	$I_F = 35 \text{ mA dc}; T_A = +25^{\circ}\text{C}, t = 96 \text{ hours}.$
13	Subgroup 2 of table I herein; $\Delta I_{V1} = -20 \text{ percent of initial readings}.$ $\Delta V_F = \pm 50 \text{ mV dc}.$

4.4 Conformance inspection. Conformance inspection shall be in accordance with [MIL-PRF-19500](#) and as follows.

- a. If the manufacturer chooses the following option(s) for testing, the sample units that are to be used in group C inspection shall be designated as such, prior to conducting the referenced group B tests. Moreover, the number of failed diodes to be counted for lot acceptance or rejected as a result of group C test shall be equal to all failed diodes of the test in group B inspection, which were pre-designated for use in group C inspection, plus any additional failures occurring group C testing. For each life test in group C inspection, the manufacturer has the option of using all, or a portion of, the sample already subjected to 340 hours of group B life testing for an additional 660 hours of testing to meet the 1,000 hour requirement.
- b. Panel mount assemblies shall be assembled with LEDs that have met the requirements of groups A, B, and C, and the applicable screening requirements specified herein. The quality conformance inspection for panel mount assemblies shall consist of the examinations and inspections specified in [table II](#) herein.

4.4.1 Group A inspection. Group A inspection shall be conducted in accordance with table E-V of [MIL-PRF-19500](#), and [tables I](#) and [II](#) herein.

4.4.2 Group B inspection. Group B inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VIB of [MIL-PRF-19500](#) and herein.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
B2	1051	Test condition A, except $T_{(high)} = +100^{\circ}\text{C}$ (25 cycles); time at temperature extremes 10 minutes minimum.
B2	1071	Fine leak: Test condition G or H (for condition H, leak testing 1 hour after pressurization shall be acceptable). Gross leak: Test condition A, D, E, or J except that leak indicator fluid shall be maintained at $+100^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
B3	1027	$I_F = 35 \text{ mA dc}$; $T_A = +25^{\circ}\text{C}$; $t = 340 \text{ hours } +72, -24 \text{ hours}$ (see 4.4.a).

4.4.3 Group C inspection. Group C inspection shall be conducted in accordance with the conditions specified for subgroup testing in table E-VII of [MIL-PRF-19500](#) and as follows.

<u>Subgroup</u>	<u>Method</u>	<u>Conditions</u>
C2	1056	Test condition A.
C2	2036	Test condition E.
C2	1071	Fine leak: Test condition G or H (for condition H, leak testing 1 hour after pressurization shall be acceptable). Gross leak: Test condition A, D, E, or J except that leak indicator fluid shall be maintained at $+100^{\circ}\text{C} \pm 5^{\circ}\text{C}$.
C3	2016	Non-operating; 1,500 G's; $t = 0.5$ ms; 5 blows in each orientation: X1, Y1, and Y2.
C3	2056	Non-operating.
C3	2006	Non-operating; 20,000 G's; X1, Y1, and Y2, one minute in each orientation.
C6	1026	$I_F = 35$ mA dc; $T_A = +25^{\circ}\text{C}$, 1,000 hours.
C7		Peak forward pulse current (transient); $t_P = 1$ μs , pps = 300, total test time = 5 s, $I_{prt} = 1.0$ A (pk).
C8		$t_P = 0.5$ ms, $P_{FM} \leq 120$ mW, $T_A = +25^{\circ}\text{C}$, $I_P = 60$ mA, 500 hours.

4.5 Methods of inspection. Methods of inspection shall be as specified in the appropriate tables and as follows.

4.5.1 Axial luminous intensity. This measurement is made with a photometer.

TABLE I. Group A inspection.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
Visual and mechanical examination	2071					
<u>Subgroup 2</u>						
Luminous intensity		$\Theta = 0$ degrees, $I_F = 20$ mA dc (see 3.3 and 4.5.1)	I_{V1}	<u>2/</u> 3.0 <u>3/</u> 20.0		mcd mcd
Luminous intensity <u>2/</u>		$\Theta = 30$ degrees; $I_F = 20$ mA dc	I_{V2}	1.5		mcd
Reverse current	4016	DC method; $V_R = 3$ V dc	I_R		1.0	μ A dc
Forward voltage	4011	DC method, $I_F = 20$ mA dc	V_F		3.0	V dc
<u>Subgroup 3</u>						
High temperature operation:		$T_A = +100^\circ\text{C}$				
Reverse current	4016	DC method; $V_R = 3$ V dc	I_R		1.0	μ A dc
Forward voltage	4011	DC method, $I_F = 20$ mA dc	V_F		3.0	V dc
Low temperature operation:		$T_A = -55^\circ\text{C}$				
Reverse current	4016	DC method; $V_R = 3$ V dc	I_R		1.0	μ A dc
Forward voltage	4011	DC method, $I_F = 20$ mA dc	V_F		3.0	V dc
<u>Subgroup 4</u>						
Capacitance	4001	$V_R = 0$; $f = 1$ MHz	C		100	pF
<u>Subgroups 5, 6, and 7</u>						
Not applicable						

1/ For sampling plan, see MIL-PRF-19500.

2/ Applies to JAN1N6092 and JANTX1N6092.

3/ Applies to JAN1N6609 and JANTX1N6609.

TABLE II. Group A inspection for panel mount assemblies.

Inspection <u>1/</u>	MIL-STD-750		Symbol	Limits		Unit
	Method	Conditions		Min	Max	
<u>Subgroup 1</u>						
External visual examination	2071					
<u>Subgroup 2</u>						
Luminous intensity		$\Theta = 0$ degrees; (see 3.3 and 4.5.1) $I_F = 20$ mA dc	I_{V1}	<u>2/</u> 3.0 <u>3/</u> 20.0		mcd mcd
Luminous intensity <u>2/</u>		$\Theta = 30$ degrees; $I_F = 20$ mA dc	I_{V2}	1.5		mcd
Reverse current	4016	DC method; $V_R = 3$ V dc	I_R		1.0	μ A dc
Forward voltage	4011	DC method, $I_F = 20$ mA dc	V_F		3.0	V dc
<u>Subgroup 3, 4, 5, and 6</u>						
Not applicable						
<u>Subgroup 7</u>						
Solderability <u>4/</u>	2026	15 devices, $c = 0$				
Resistance to solvents	1022	Solutions A and B only. 15 devices, $c = 0$				
Physical dimensions	2066	See figure 2, 45 devices, $c = 0$				

1/ For sampling plan, see MIL-PRF-19500.

2/ Applies to JANM19500/51901 and JANTXM19500/51902.

3/ Applies to JANM19500/51903 and JANTXM19500/51904.

4/ The sample size for solderability test applies to the number of leads inspected except in no case shall less than three leads be used to provide the number of leads required.

TABLE III. Group E inspections (all quality levels) for qualification only.

Inspections	MIL-STD-750		Quality conformance inspection sample size
	Method	Conditions	
<u>Subgroup 1</u>			45 devices, c = 0
Temperature cycling	1051	Test condition A, except that the hot temperature shall be +100°C, +15°C / -0°C, 20 cycles.	
Hermetic seal	1071		
Fine leak			
Gross leak			
Electrical measurements		See tables I and II , subgroup 2.	
<u>Subgroup 2</u>			45 devices, c = 0
Intermittent operating life	1037	For all devices with organic material.	
Electrical measurements		See tables I and II , subgroup 2.	
<u>Subgroups 5 and 6</u>			
Not applicable			

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory. The notes specified in [MIL-PRF-19500](#) are applicable to this specification.)

6.1 Intended use. Semiconductors conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Packaging requirements (see 5.1).
- c. Lead finish (see 3.4.1).
- d. The complete PIN, see 1.5 and 6.9.

6.3 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List (QML-19500) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DLA Land and Maritime, ATTN: VQE, P.O. Box 3990, Columbus, OH 43218-3990 or e-mail vqe.chief@dla.mil. An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at <https://assist.dla.mil>.

6.4 Applications. These light emitting diodes are primarily intended for use as visible indicators (ON or OFF) of status. Intensity is easily modulated by varying the forward current, so the level can be adjusted to suit ambient light conditions. The modulation rate capability can be high enough to accommodate video signals. Diodes may be operated in either direct current or pulsed mode depending upon current availability. Pulsed operation is desirable as a means of linear control of average intensity or of improving the average efficiency (ratio of average intensity to average current). A panel mount configuration is provided (see figure 2). The panel mount configuration provides precise and consistent mechanical surfaces for mounting and optical alignment.

6.5 Operating considerations. Under normal ambient light conditions (300 to 1,000 lux), a typical forward current of 6 mA is required to produce an adequate on-state luminous intensity. This current level is directly compatible with TTL devices, and only simple buffering is needed when operating from LSTTL, LTTL, CMOS. No consideration of inrush current or keep-alive voltage is necessary. The relative luminous intensity (normalized at 20 mA) is displayed on figure 3 for diffused lens devices and figure 4 for clear, sunlight viewable lens devices.

6.5.1 Design considerations. Design consideration should include: Ambient light level and color; viewing background, color and texture; observer, attentiveness, position and operator accessories (glasses, goggles). Where ambient light levels are so high that it is difficult to distinguish between the LED on condition and glint (reflection of light from the surface of the LED lens), a modulated current causing a visible flicker in the LED at 10 Hz is recommended. Color filters, louvered filters, and circular polarizing filters may enhance the desired visual effects of the LED.

6.5.2 Clear lens (sunlight viewable). For applications in bright sunlight, sunlight viewable device types are recommended. With the proper enhancement filter, these parts are readable in sunlight ambient conditions.

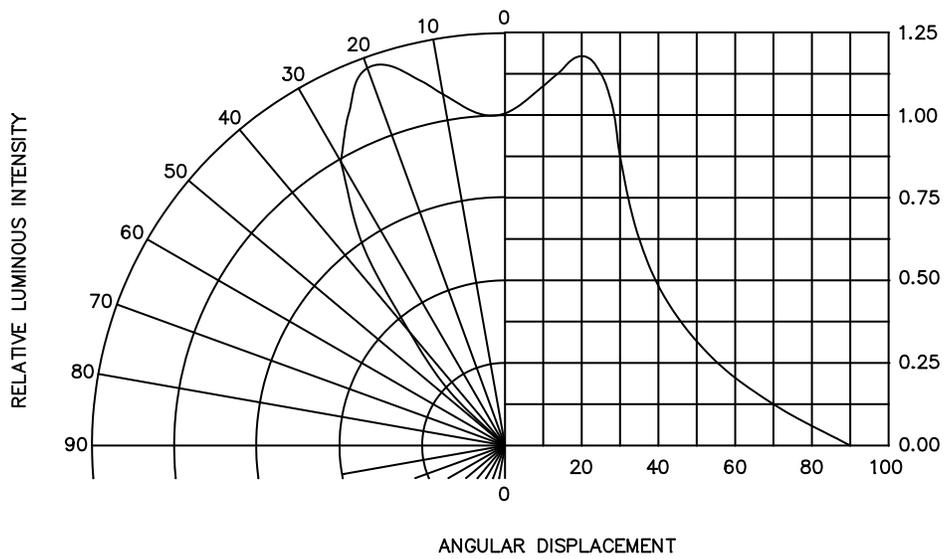
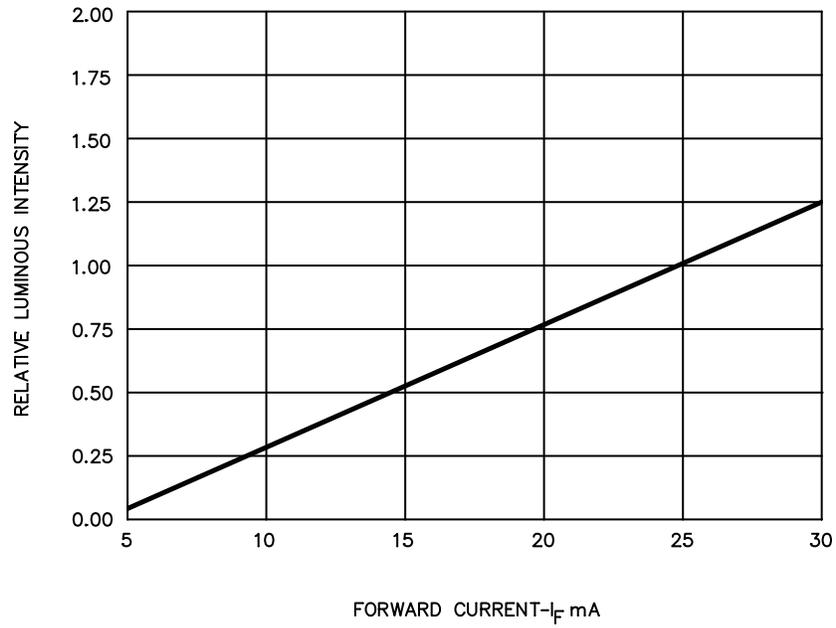


FIGURE 3. Relative luminous intensity, diffused lens devices.

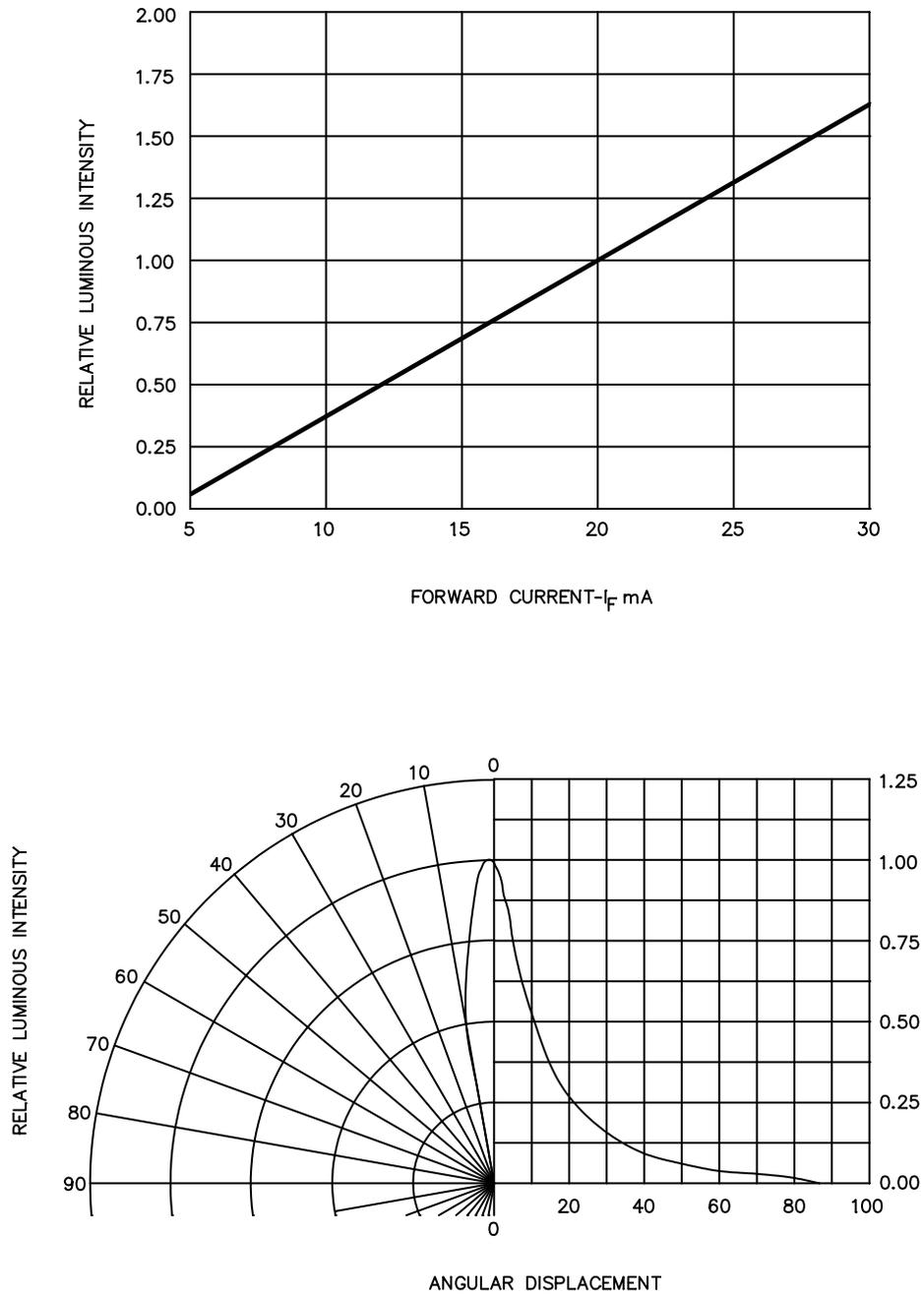


FIGURE 4. Relative luminous intensity, clear lens (sunlight viewable) devices.

6.6 Reliability considerations. There is a correlation between LED luminous intensity degradation and operating current levels. To lengthen the useful life of this device, drive current should be held to a minimum consistent with use conditions. Luminous intensity would have to change by more than 50 percent before becoming apparent to the causal observer.

6.7 Replacement data.

6.7.1 PIN history. MIL-S-19500/519(EL) Amendment 1, dated 8 March 1977 introduced the panel mountable LED lamp assembly option by using commercially available LED holders with their associated commercial part numbers to be used with the qualified device types. MIL-S-19500/519(EL) Amendment 2, dated 10 March 1978 removed the commercial lamp holder option and replaced it with military PINs M19500/519-01 and M19500/519-02. These two PINs did not use the JAN, JTX or JANTX prefixes. MIL-S-19500/519(ER) Amendment 3, dated 19 January 1983 altered the PIN for the panel mount assembly again by adding the JAN and JTX prefixes and removing the dash ("-") that separated military specification PIN designator from the sequential dash number. Amendment 3 also notified user that device types JANM19500/51901 and JTXM19500/51902 are direct replacements for device types M19500/519-01 and M19500/519-02, respectively.

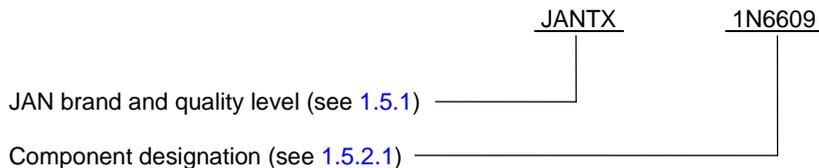
6.7.2 Superseded PINs. The following supersession data applies to PINs associated with this document:

Replacement PIN as specified within MIL-S-19500/519B(ER), dated 10 January 1992	Superseded PIN as specified within MIL-S-19500/519(ER) Amendment 3, dated 19 January 1983	Original PIN as specified within MIL-S-19500/519(EL) Amendment 2, dated 10 March 1978
JANM19500/51901	JANM19500/51901	M19500/519-01
JANTXM19500/51902	JTXM19500/51902	M19500/519-02
JANM19500/51903	JANM19500/51903	
JANTXM19500/51904	JTXM19500/51904	

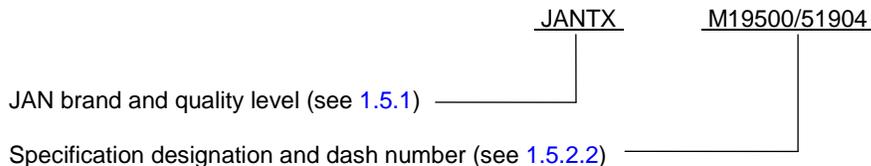
6.7.3 Interchangeability. The PINs and device types JANM19500/51901 and JANTXM19500/51902 are interchangeable with the PINs and device types M19500/519-01 and M19500/519-02.

6.8 PIN construction examples.

6.8.1 Through-hole mount devices. The PIN for through-hole mount devices are in the following form.



6.8.2 Panel mount assemblies. The PIN for panel mount assemblies are in the following form.



6.9 List of PINs. The following is a list of all possible PINs for the devices available on this specification sheet.

PIN	Description
JAN1N6092	LED, red, diffused lens, through-hole mount, quality level JAN.
JANTX1N6092	LED, red, diffused lens, through-hole mount, quality level JANTX.
JAN1N6609	LED, red, clear lens, through-hole mount, quality level JAN.
JANTX1N6609	LED, red, clear lens, through-hole mount, quality level JANTX.
JANM19500/51901	LED, red, diffused lens, panel mount assembly, quality level JAN.
JANTXM19500/51902	LED, red, diffused lens, panel mount assembly, quality level JANTX.
JANM19500/51903	LED, red, clear lens, panel mount assembly, quality level JAN.
JANTXM19500/51904	LED, red, clear lens, panel mount assembly, quality level JANTX.

6.10 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:
 Army – CR
 Air Force – 85
 DLA – CC

Preparing activity:
 DLA – CC
 (Project 5980–2016–002)

Review activities:
 Army – MI
 Air Force – 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.