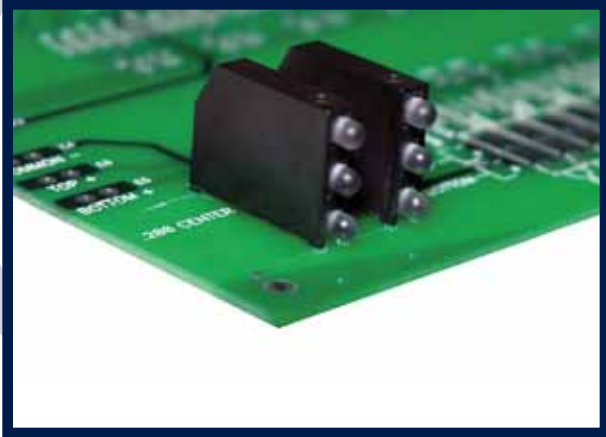




593 SERIES

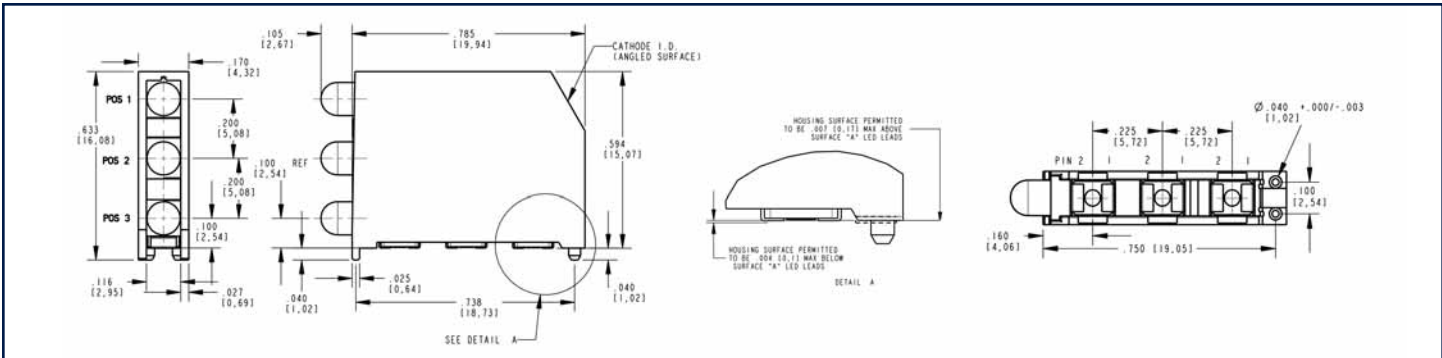
3mm Tri-level Prism® CBI® Surface Mount LED SINGLE COLOR



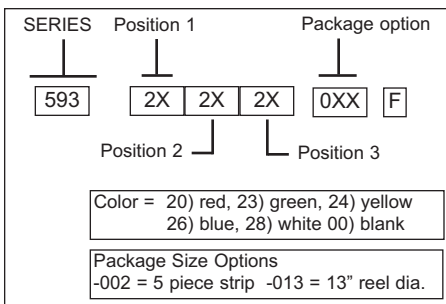
FEATURES / BENEFITS

- ▲ RoHS Compliant
- ▲ Incorporates latest LED technology, specifically designed for surface mounting
- ▲ Compatible with automatic placement equipment
- ▲ Compatible with surface mount reflow soldering processes
- ▲ Black housing enhances contrast ratio
- ▲ Housing material meet UL-94V-0 flammability ratings
- ▲ Patented Tri-level design provides increased indication without increased space
- ▲ Illumination areas compatible with industry standard 3mm through-hole Tri-level Circuit Board Indicators
- ▲ Packaged in moisture barrier bags for dry packaging per IPC/JEDEC J-STD-033, moisture sensitivity level 2
- ▲ Helps to eliminate mixed technology pc board processing

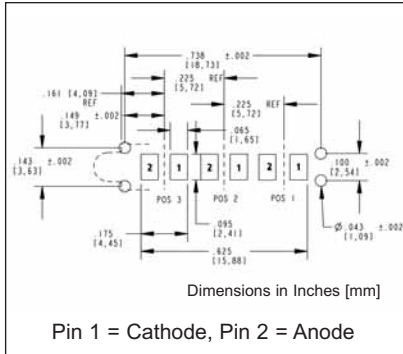
SPECIFICATIONS



PART NUMBER CODE*



| PART NUMBER | COLOR COMBO |
|-----------------|----------------------|
| 593-202020-0XXF | RED/RED/RED |
| 593-232323-0XXF | GREEN/GREEN/GREEN |
| 593-242424-0XXF | YELLOW/YELLOW/YELLOW |
| 593-262626-0XXF | BLUE/BLUE/BLUE |
| 593-282828-0XXF | WHITE/WHITE/WHITE |



Note: Custom color combinations available upon request. Check with factory for details.

Dialight Corporation

1501 Route 34 South • Farmingdale, NJ 07727 USA
Tel: (1) 732-919-3119 • Fax: (1) 732-751-5778 • www.dialight.com



MDEF593A001_A

ABSOLUTE MAXIMUM RATINGS (TA= 25°C)

| PARAMETER | 20 | 23 | 24 | 26 | 28 |
|--|------------------------------------|-----------------|-----------------|-----------------|-----------------|
| COLOR | Red | Green | Yellow | Blue | White |
| POWER DISSIPATION (derate linearly from 60°C mA°C) | 95mW 0.75 | 95mW 0.75 | 95mW 0.75 | 90mW 0.44 | 80mW 0.60 |
| FORWARD DC CURRENT | 30mA | 30mA | 30mA | 20mA | 20mA |
| PEAK FORWARD CURRENT (µsec) | 0.5 amp | 0.5 amp | 0.5 amp | 0.2 amp | 0.2 amp |
| OPERATING TEMPERATURE | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C |
| STORAGE TEMPERATURE | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C | -40°C To +100°C |
| SOLDERING TEMPERATURES IR REFLOW FOR LEAD FREE SOLDERING, RoHS | 260°C (+0°C / -5°C) For 30 Seconds | | | | |

OPERATING CHARACTERISTICS (TA= 25°C)

| PARAMETER | PART NO. | COLOR | MIN | TYP | MAX | UNITS | TEST COND. |
|--------------------------------------|----------|--------|-----|--------------------------------|-----|-------|----------------------|
| Forward Voltage V _F | 20 | red | | 2.0 | 2.5 | V | I _F =10mA |
| | 23 | green | | 2.0 | 2.5 | | |
| | 24 | yellow | | 2.0 | 2.5 | | |
| | 26 | blue | | 3.5 | 4.2 | | I _F =20mA |
| | 28 | white | 2.9 | 3.5 | 3.9 | | |
| Reverse Voltage V _R | 20 | red | | 12 | | V | I _F =10µA |
| | 23 | green | | 12 | | | |
| | 24 | yellow | | 12 | | | |
| | 26 | blue | | 5 | | | |
| | 28 | white | | 5 | | | |
| Dominant Wavelength Dom | 20 | red | 622 | 628 | 634 | nm | I _F =20mA |
| | 23 | green | 564 | 570 | 576 | | |
| | 24 | yellow | 580 | 587 | 595 | | |
| | 26 | blue | 462 | 465 | 468 | | |
| | 28 | white | | X .33 .33 .33 Y .33 .33 .33 | | | |
| Luminous Intensity I _v | 20 | red | 4 | 6 | 8 | mcd | I _F =20mA |
| | 23 | green | 7 | 11 | 16 | | |
| | 24 | yellow | 7 | 11 | 15 | | |
| | 26 | blue | 4 | 7 | 10 | | |
| | 28 | white | 60 | 85 | 110 | | |
| Viewing Angle (2Ø 1/2) | 20 | red | | 40 | | deg. | |
| | 23 | green | | 40 | | | |
| | 24 | yellow | | 40 | | | |
| | 26 | blue | | 40 | | | |
| | 28 | white | | 40 | | | |

DIALIGHT RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME IN ORDER TO SUPPLY THE BEST PRODUCT POSSIBLE.

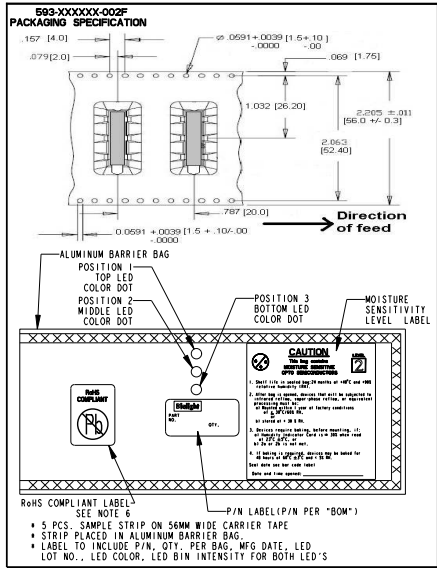
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1501 Route 34 South • Farmingdale, NJ 07727 USA

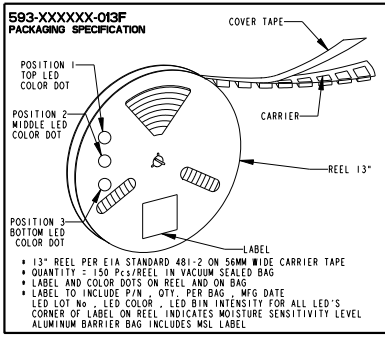
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MDEF593A001_A



- NOTES:**
- 1- PRODUCT P/N WITH "F" SUFFIX ENDING IS ROHS COMPLIANT. LED LEADS ARE PLATED TIN (Sn), NICKEL (Ni) UNDERPLATE ON COPPER (Cu) LEADS.
 - 2- STORAGE OF TAPED PARTS SHALL NOT EXCEED TWELVE (12) MONTHS AFTER WHICH RE-PACKAGING IS REQUIRED.
 - 3- FRONT AND REAR TERMINALS (OF EACH LED) OF THE ASSEMBLY TO BE WITHIN .005 COLLINEARITY.
 - 4- MOISTURE SENSITIVITY LEVEL
A LABEL WILL BE PLACED ON THE BAG - CHECK CHART FOR PROPER LEVEL
 - 5- *** CAUTION ***
FOR PRODUCTS THAT ARE ESD SENSITIVE OBSERVE PRECAUTIONS IN HANDLING ELECTROSTATIC SENSITIVE DEVICES. FOR EYE SAFETY DO NOT STARE DIRECTLY INTO THE LIGHT BEAM OF THESE LED DEVICES AT CLOSE RANGE.
 - 6- THIS PRODUCT IS ROHS COMPLIANT. EACH BAG IS MARKED WITH ROHS COMPLIANT LABEL (P/N PER BOM) OR EQUIVALENT MARKINGS. LED MUST BE Pb FREE (ROHS COMPLIANT).
 - 7- DIALIGHT PART NUMBERS:
593-XXXXX-002F-1 PC PACKED IN A SAMPLE STRIP OF (5 PCS/STRIP)
593-XXXXX-013F-1 PC PACKED IN A FULL 13" REEL (150 PCS/REEL)



| REV | ECN NO | REVISIONS | DRN | CD | APP | DATE |
|-----|--------|---|-----|------|-----|---------|
| A | | NEW RELEASE | 00 | N.O. | WS | 3-28-07 |
| B | | ADDED P/N'S 593-222221-002F +013F, 593-272129-002F -013F, 593-292929-002F -013F. ADDED INTENSITY SPECS. ADDED PIN REFERENCES. | | | KLJ | |

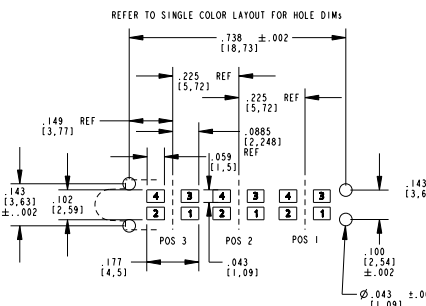
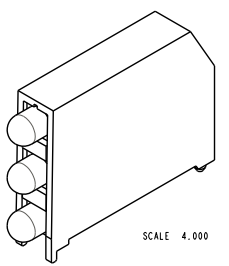
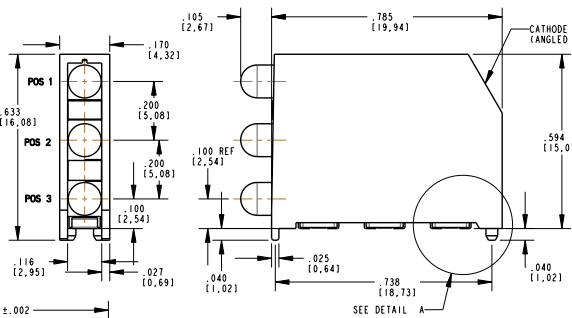
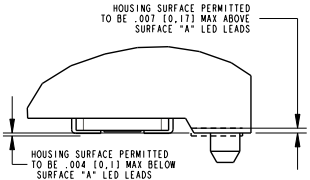
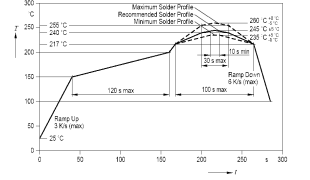


FIG. 2 RECOMMENDED PAD LAYOUT - MULTI-COLOR LEDS

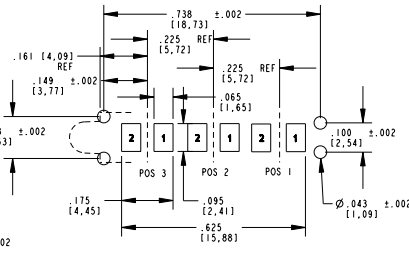
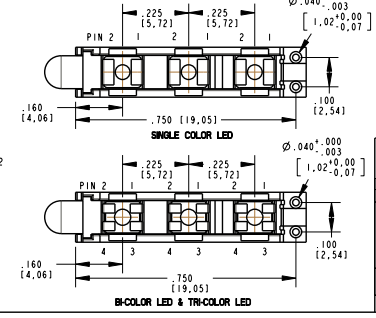


FIG. 1 RECOMMENDED PAD LAYOUT - SINGLE COLOR LEDS



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SCALE: 1:100

DRAWING NUMBER: C-17270

REV: B

TITLE: TRI-LEVEL PRISM

MATERIAL: ROHS COMPLIANT

FINISH: -

FSCM: 83330

SHEET 1 OF 2 FAMILY TABLE

| PART NUMBER | POSITION 1 | POSITION 2 | POSITION 3 | MOISTURE LEVEL | PAD LAYOUT REFERENCE | MULTI-COLOR LED PIN REFERENCES | | | | LUMINOUS INTENSITY I _v (mcd)@I _f =20mA TYP. | | | DOMINANT WAVELENGTH d(nm) TYP. | | | FORWARD VOLTAGE V _f (V) TYP. | | |
|-----------------|------------------|------------------|------------------|----------------|----------------------|--------------------------------|--------------|--------------|----------------|---|-------|-------|-----------------------------------|------------------|------------------|--|-------|-------|
| | | | | | | PIN 1 | PIN 2 | PIN 3 | PIN 4 | POS 1 | POS 2 | POS 3 | POS 1 | POS 2 | POS 3 | POS 1 | POS 2 | POS 3 |
| 593-202020-002F | RED | RED | RED | 2 | FIG. 1 | NOT APPLICABLE | | | | 6 | 6 | 6 | 628 | 628 | 628 | 2.0 | 2.0 | 2.0 |
| 593-202020-013F | RED | RED | YELLOW | 2 | FIG. 2 | NOT APPLICABLE | | | | 6 | 6 | 11 | 628 | 628 | 587 | 2.0 | 2.0 | 2.0 |
| 593-202024-002F | RED | RED | YELLOW | 2 | FIG. 2 | NOT APPLICABLE | | | | 6 | 6 | 11 | 628 | 628 | 587 | 2.0 | 2.0 | 2.0 |
| 593-212121-002F | AIGaAs RED | AIGaAs RED | AIGaAs RED | 2 | FIG. 1 | NOT APPLICABLE | | | | 29 | 29 | 29 | 645 | 645 | 645 | 1.75 | 1.75 | 1.75 |
| 593-212121-013F | AIGaAs RED | AIGaAs RED | AIGaAs RED | 2 | FIG. 1 | RED CATHODE | RED ANODE | GREEN ANODE | GREEN CATHODE | 29 | 29 | 7 | 645 | 645 | 628 | 1.75 | 1.75 | 2.0 |
| 593-212130-002F | AIGaAs RED | AIGaAs RED | SUPER RED GREEN | 2 | FIG. 1 & FIG. 2 | RED CATHODE | RED ANODE | GREEN ANODE | GREEN CATHODE | 29 | 29 | 10 | 645 | 645 | 570 | 1.75 | 1.75 | 2.0 |
| 593-222221-002F | GREEN | GREEN | AIGaAs RED | 2 | FIG. 1 | NOT APPLICABLE | | | | 16 | 16 | 29 | 570 | 570 | 645 | 2.0 | 2.0 | 1.75 |
| 593-222222-002F | GREEN | GREEN | GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 16 | 16 | 16 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-222222-013F | GREEN | GREEN | GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 16 | 16 | 16 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-232323-002F | GREEN | GREEN | GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 11 | 11 | 11 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-232323-013F | GREEN | GREEN | GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 11 | 11 | 11 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-242424-002F | YELLOW | YELLOW | YELLOW | 2 | FIG. 1 | NOT APPLICABLE | | | | 11 | 11 | 11 | 587 | 587 | 587 | 2.0 | 2.0 | 2.0 |
| 593-242424-013F | YELLOW | YELLOW | YELLOW | 2 | FIG. 1 | NOT APPLICABLE | | | | 11 | 11 | 11 | 587 | 587 | 587 | 2.0 | 2.0 | 2.0 |
| 593-262626-002F | BLUE | BLUE | BLUE | 2 | FIG. 1 | NOT APPLICABLE | | | | 7 | 7 | 7 | 465 | 465 | 465 | 3.5 | 3.5 | 3.5 |
| 593-262626-013F | BLUE | BLUE | BLUE | 2 | FIG. 1 | NOT APPLICABLE | | | | 7 | 7 | 7 | 465 | 465 | 465 | 3.5 | 3.5 | 3.5 |
| 593-272129-002F | AlInGaP YELLOW | AIGaAs RED | InGaN GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 80 | 29 | TBD | 587 | 645 | 525 | 2.0 | 1.75 | 3.7 |
| 593-272129-013F | AlInGaP YELLOW | AIGaAs RED | InGaN GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | 80 | 29 | TBD | 587 | 645 | 525 | 2.0 | 1.75 | 3.7 |
| 593-272727-002F | AlInGaP YELLOW | AlInGaP YELLOW | AlInGaP YELLOW | 2 | FIG. 1 | NOT APPLICABLE | | | | 80 | 80 | 80 | 587 | 587 | 587 | 2.0 | 2.0 | 2.0 |
| 593-272727-013F | AlInGaP YELLOW | AlInGaP YELLOW | AlInGaP YELLOW | 2 | FIG. 1 | NOT APPLICABLE | | | | 80 | 80 | 80 | 587 | 587 | 587 | 2.0 | 2.0 | 2.0 |
| 593-282828-002F | WHITE | WHITE | WHITE | 2 | FIG. 1 | NOT APPLICABLE | | | | 85 | 85 | 85 | X=0.33 Y=0.33 | X=0.33 Y=0.33 | X=0.33 Y=0.33 | 3.5 | 3.5 | 3.5 |
| 593-282828-013F | WHITE | WHITE | WHITE | 2 | FIG. 1 | NOT APPLICABLE | | | | 85 | 85 | 85 | X=0.33 Y=0.33 | X=0.33 Y=0.33 | X=0.33 Y=0.33 | 3.5 | 3.5 | 3.5 |
| 593-292929-002F | InGaN GREEN | InGaN GREEN | InGaN GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | TBD | TBD | TBD | 525 | 525 | 525 | 3.7 | 3.7 | 3.7 |
| 593-292929-013F | InGaN GREEN | InGaN GREEN | InGaN GREEN | 2 | FIG. 1 | NOT APPLICABLE | | | | TBD | TBD | TBD | 525 | 525 | 525 | 3.7 | 3.7 | 3.7 |
| 593-303030-002F | SUPER RED GREEN | SUPER RED GREEN | SUPER RED GREEN | 2 | FIG. 2 | RED CATHODE | RED ANODE | GREEN ANODE | GREEN CATHODE | 7 | 7 | 7 | 628 | 628 | 628 | 2.0 | 2.0 | 2.0 |
| 593-303030-013F | SUPER RED GREEN | SUPER RED GREEN | SUPER RED GREEN | 2 | FIG. 2 | RED CATHODE | RED ANODE | GREEN ANODE | GREEN CATHODE | 10 | 10 | 10 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-313131-002F | YELLOW GREEN | YELLOW GREEN | YELLOW GREEN | 2 | FIG. 2 | YELLOW CATHODE | YELLOW ANODE | GREEN ANODE | GREEN CATHODE | 6 | 6 | 6 | 590 | 590 | 590 | 2.0 | 2.0 | 2.0 |
| 593-313131-013F | YELLOW GREEN | YELLOW GREEN | YELLOW GREEN | 2 | FIG. 2 | YELLOW CATHODE | YELLOW ANODE | GREEN ANODE | GREEN CATHODE | 10 | 10 | 10 | 570 | 570 | 570 | 2.0 | 2.0 | 2.0 |
| 593-323232-002F | SUPER-RED YELLOW | SUPER-RED YELLOW | SUPER-RED YELLOW | 2 | FIG. 2 | RED CATHODE | RED ANODE | YELLOW ANODE | YELLOW CATHODE | 9 | 9 | 9 | 628 | 628 | 628 | 2.0 | 2.0 | 2.0 |
| 593-323232-013F | SUPER-RED YELLOW | SUPER-RED YELLOW | SUPER-RED YELLOW | 2 | FIG. 2 | RED CATHODE | RED ANODE | YELLOW ANODE | YELLOW CATHODE | 6 | 6 | 6 | 590 | 590 | 590 | 2.0 | 2.0 | 2.0 |
| 593-353535-002F | BLUE GREEN RED | BLUE GREEN RED | BLUE GREEN RED | 2 | FIG. 2 | RED CATHODE | COMMON ANODE | GREEN ANODE | BLUE CATHODE | TBD | TBD | TBD | 466 | 466 | 466 | 3.5 | 3.5 | 3.5 |
| 593-353535-013F | BLUE GREEN RED | BLUE GREEN RED | BLUE GREEN RED | 2 | FIG. 2 | RED CATHODE | COMMON ANODE | GREEN ANODE | BLUE CATHODE | TBD | TBD | TBD | 466 | 466 | 466 | 3.5 | 3.5 | 3.5 |

| | |
|--|----------------------------|
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| SCALE: 3:000 | DRAWING NUMBER |
| ALL DIM'S IN: INCHES (MM) | C-17270 |
| TOLERANCES: UNLESS OTHERWISE SPECIFIED | REV |
| FRACTIONS: 1/16 | B |
| DECIMALS: 1:100: 0.01 | TITLE |
| DECIMALS: 1:1000: 0.005 | TRI-LEVEL PRISM |
| DECIMALS: 1:10000: 0.0005 | MATERIAL |
| ANGLES: 30° | RoHS COMPLIANT |
| FINISH: | Dialight |
| 1501 ROUTE 34 SOUTH | FARMINGDALE, NJ 07727 |
| ESCM 83330 | SHEET 2 OF 2 FAMILY TABLE: |