



LDP24AS

TRANSIL LOAD DUMP PROTECTION

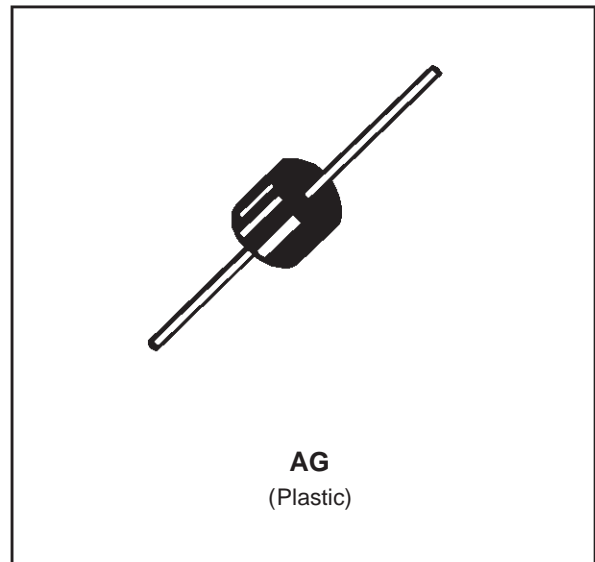
FEATURES

- TRANSIENT VOLTAGE SUPPRESSOR DIODE ESPECIALLY DESIGNED FOR LOAD DUMP EFFECT PROTECTION
- HIGH SURGE CURRENT CAPABILITY :
40 A / 40 ms EXPONENTIAL WAVE
- COMPLIANT WITH MAIN STANDARDS SUCH AS:
-ISO / DTR 7637

DESCRIPTION

Transient voltage suppressor diode especially developed for sensitive circuit protection in automotive systems such as dash board, car radios etc.

Its high surge current capability and instantaneous response to transients provide an efficient protection against the load dump effect.



ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|--------------------|---|--|----------------------|----------------------------|
| V_{PP} | Peak pulse load dump overvoltage See note 1 - 2 | $T_{amb} = 85^{\circ}C$ | 120 | V |
| P | Power dissipation on infinite heatsink | $T_{amb} = 100^{\circ}C$ | 5 | W |
| I_{FSM} | Non repetitive surge peak forward current. | T_j initial = $25^{\circ}C$ $t = 10$ ms | 200 | A |
| T_{stg} T_j | Storage and junction temperature range. | | - 65 to + 175 170 | $^{\circ}C$ $^{\circ}C$ |
| T_L | Maximum lead temperature for soldering during 10 sec at 4 mm from case. | | 230 | $^{\circ}C$ |

THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---------------|--|--|-------|---------------|
| $R_{th(j-l)}$ | Junction-leads on infinite heatsink | | 15 | $^{\circ}C/W$ |
| $R_{th(j-a)}$ | Junction to ambient on printed circuit. $L_{lead} = 10$ mm | | 50 | $^{\circ}C/W$ |

Note 1 :

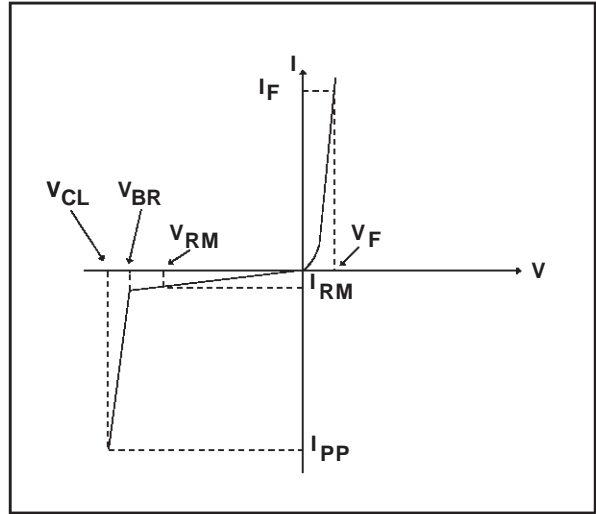
For surges greater than the maximum values,
the diode will present a short-circuit Anode - Cathode.

Note 2 : Surge generator

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ELECTRICAL CHARACTERISTICS

| Symbol | Parameter |
|------------|---|
| V_{RM} | Stand-off voltage. |
| V_{BR} | Breakdown voltage. |
| V_{CL} | Clamping voltage. |
| I_{PP} | Peak pulse current. |
| αT | Temperature coefficient of V_{BR} . |
| C | Capacitance |
| t clamping | Clamping time (0V to V_{BR}): $t_p = 1ps$ |
| V_F | Peak forward voltage drop ($I_{FM} = 10A$) $V_F = 0.9$ Volt Typ. |



| Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|------------|---|------|------|-----------------|--------------------|
| I_{RM} | $T_C = -40^\circ C$ $T_C = 25^\circ C$ $T_C = 85^\circ C$ $V_{RM} = 24V$ | | | 10 50 300 | μA |
| V_{BR} | $T_C = 25^\circ C$ $I_R = 1mA$ | 25 | | 32 | V |
| V_{CL} | $T_C = -40^\circ C$ $T_C = 25^\circ C$ $T_C = 85^\circ C$ $I_{PP} = 40A$ (Note 2) | | | 36 38 40 | V |
| αT | $T_C = 25^\circ C$ | | | 9.6 | $10^{-4}/^\circ C$ |
| C | F = 1MHz $V_R = 0V$ | | 8000 | | pF |

Note 2 : Surge generator

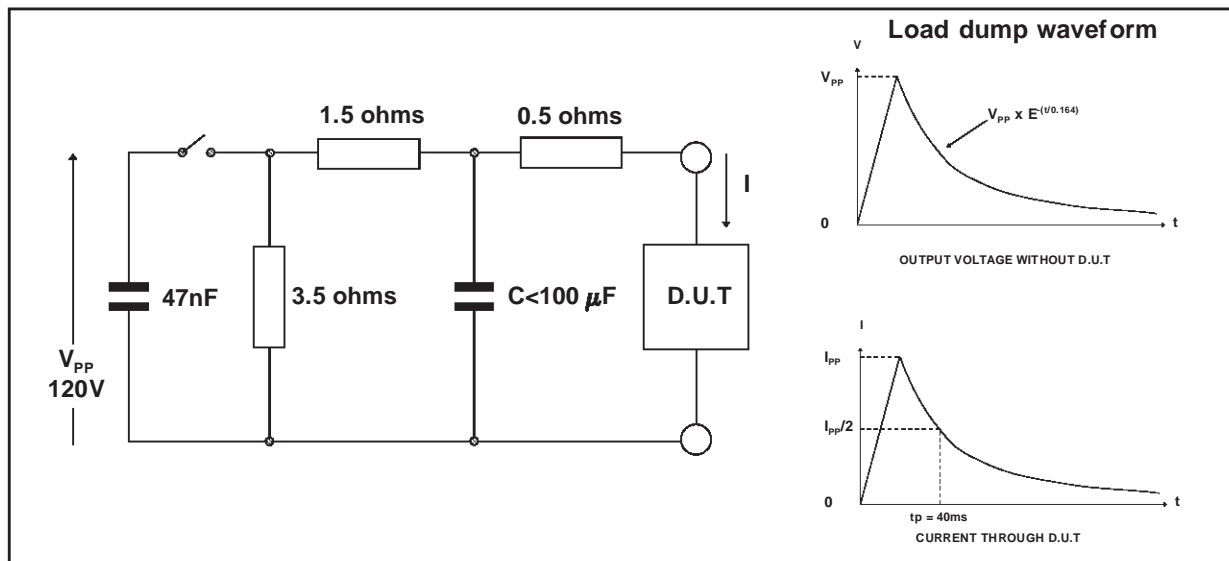


Figure 1 : Peak pulse power versus exponential pulse duration (T_j initial =85°C).

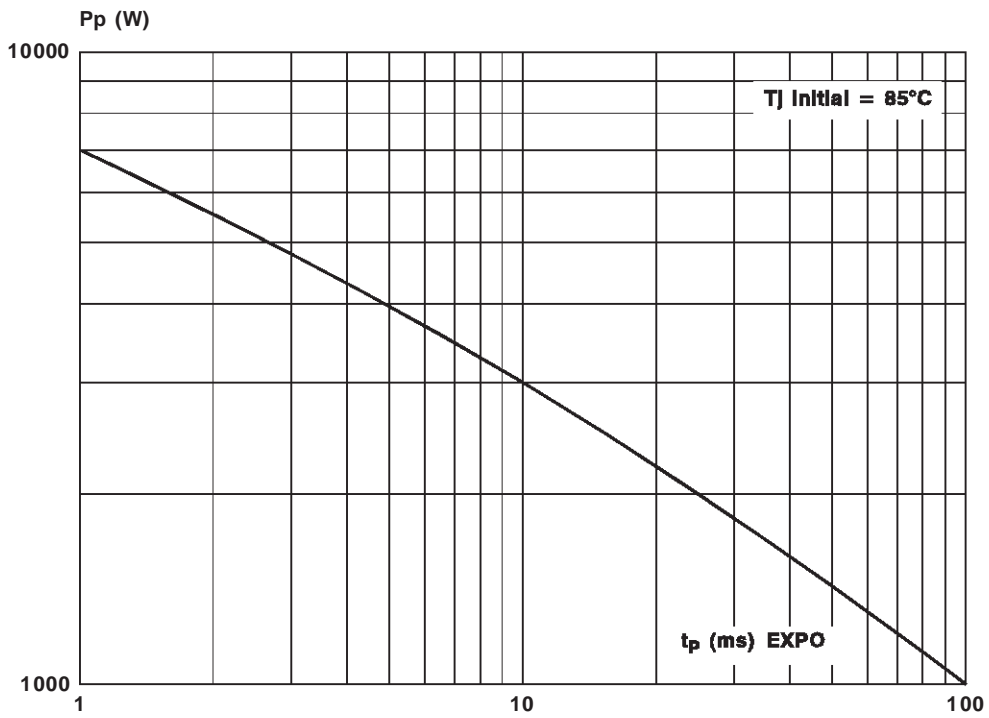
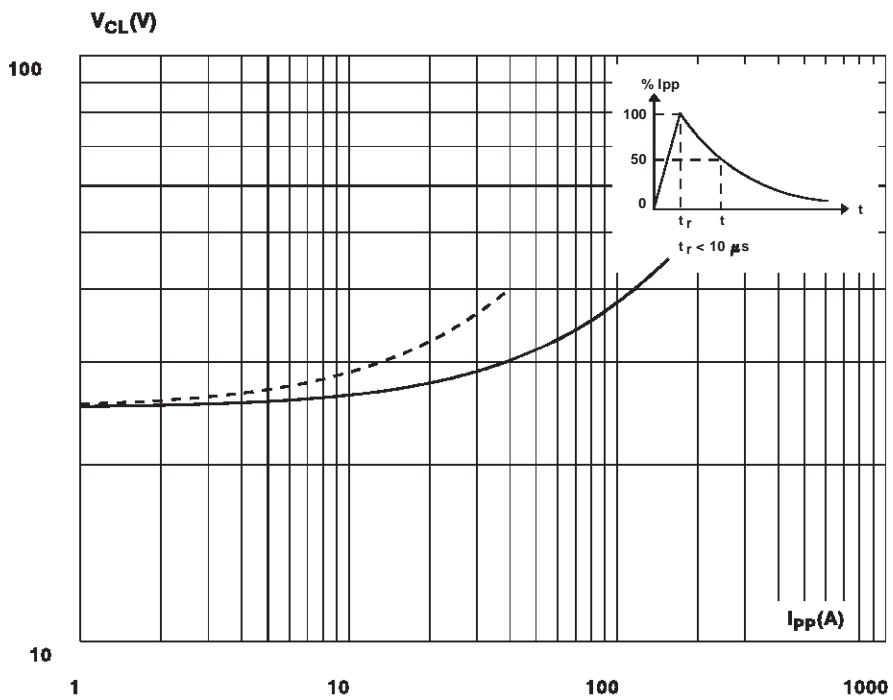


Figure 2 : Clamping voltage versus peak pulse current (T_j initial =85°C).
 exponential waveform
 $t = 40$ ms-----
 $t = 1$ ms_____



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Figure 3 : Peak pulse current versus exponential pulse duration (T_j initial = 85°C).

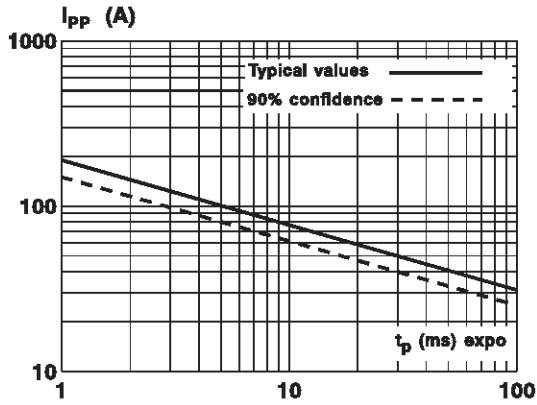


Figure 4 : Peak pulse power versus junction temperature.

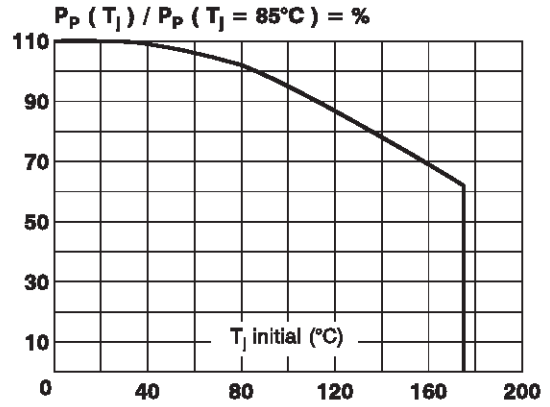


Figure 5 : Transient thermal impedance junction-ambient versus pulse duration (device mounted on PC Board with $L_{lead} = 10mm$).

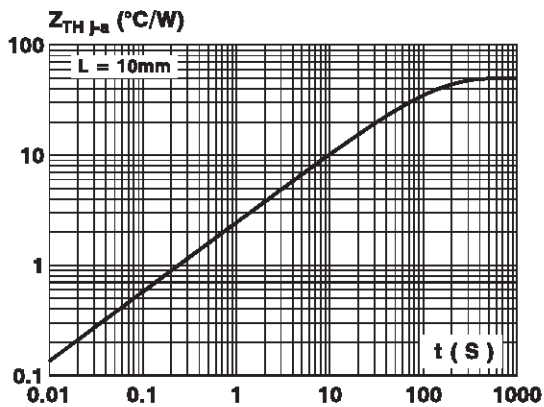
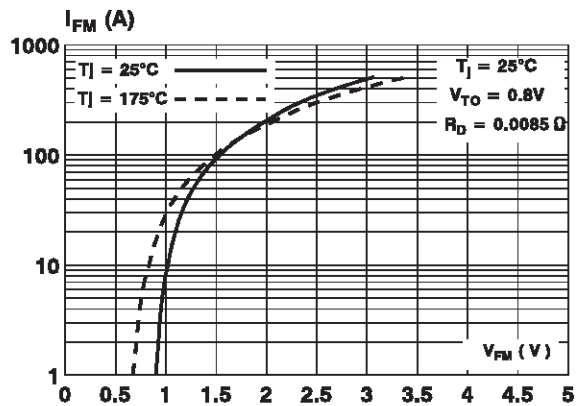
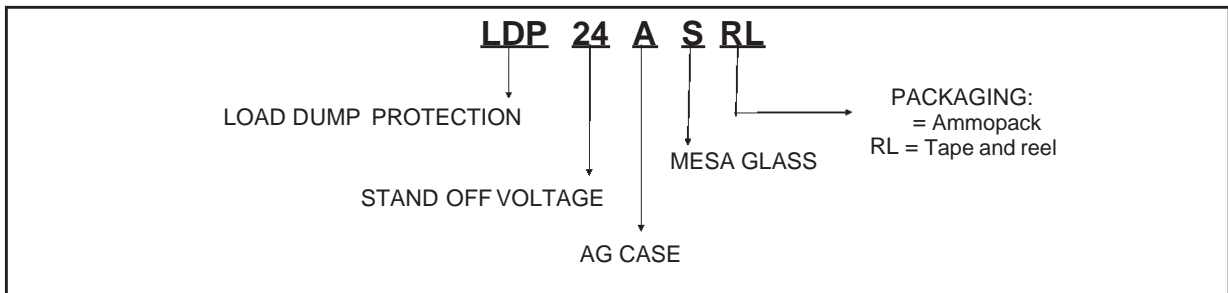


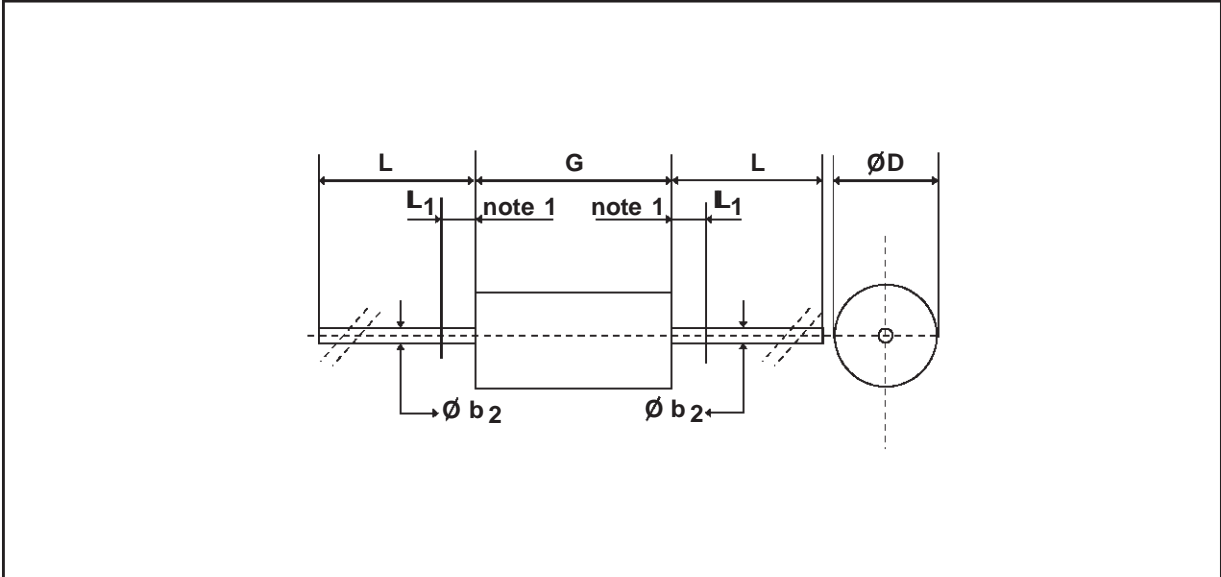
Figure 6 : Peak forward current versus peak forward voltage drop (typical values).



ORDER CODE



PACKAGE MECHANICAL DATA
AG (Plastic)



| REF. | DIMENSIONS | | | | NOTES |
|------|-------------|------|--------|-------|---|
| | Millimeters | | Inches | | |
| | Min. | Max. | Min. | Max. | |
| A | | 9 | | 0.354 | 1- The lead is not controlled within zone L1. 2- The minimum axial length within which the device may be placed bent at right angles is 0.79" (20 mm). |
| B | 20 | | 0.787 | | |
| Ø C | | 8 | | 0.315 | |
| Ø D | 1.35 | 1.45 | 0.053 | 0.057 | |
| L1 | | 1.27 | | 0.050 | |

MARKING : Logo, Date Code, Type Code, Cathode Band.

Weight = 2.16 g.

Packaging : standard packaging is in tape and reel.

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