



## LDP24A

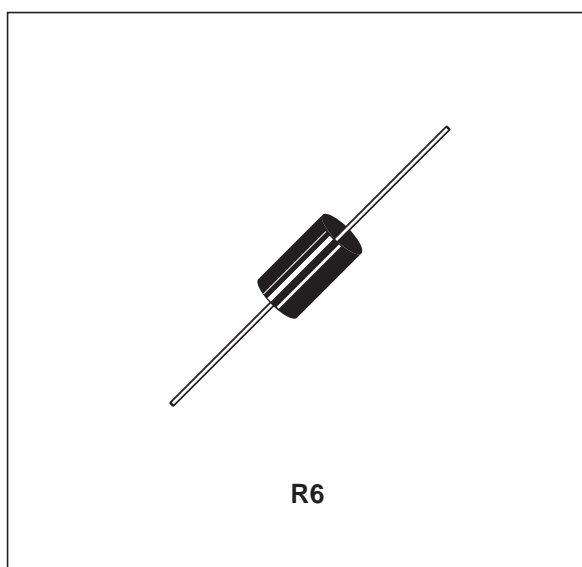
### TRANSIENT PROTECTION LOAD DUMP

#### FEATURES

- TRANSIENT VOLTAGE SUPPRESSOR DIODE ESPECIALLY DESIGNED FOR LOAD DUMP PROTECTION
- COMPLIANT WITH MAIN STANDARDS SUCH AS:  
ISO / DTR 7637

#### DESCRIPTION

Transient voltage suppressor diodes especially useful in protecting integrated circuits, MOS, hybrids and other overvoltages sensitive semiconductors and components.



#### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V <sub>PP</sub>	Peak pulse load dump overvoltage See note 1	T <sub>amb</sub> = 85°C	100	V
P	Power dissipation on infinite heatsink	T <sub>amb</sub> = 100°C	5	W
I <sub>FSM</sub>	Non repetitive surge peak forward current.	T <sub>j</sub> initial = 25°C t <sub>p</sub> = 10 ms	500	A
T <sub>stg</sub>	Storage temperature range.		- 65 to + 175	°C
T <sub>j</sub>	Maximum operating temperature		175	°C
T <sub>L</sub>	Maximum lead temperature for soldering during 10 sec at 4 mm from case.		230	°C

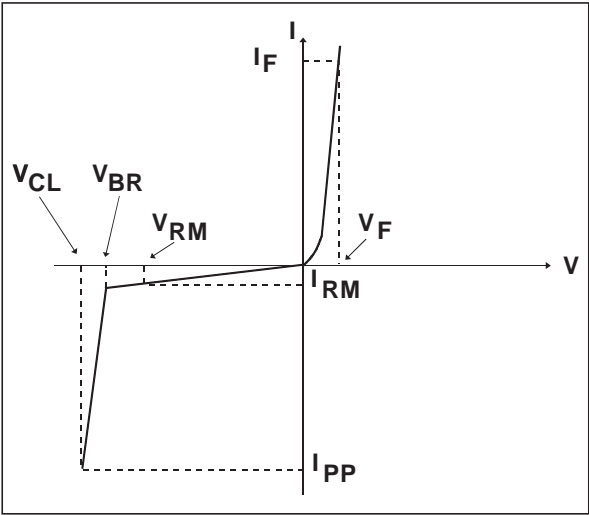
#### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th</sub> (j-a)	Junction ambient thermal resistance on infinite heatsink L <sub>lead</sub> = 10 mm	15	°C/W

**Note 1:** For surges greater than the maximum values, the diode will present a short-circuit Anode - Cathode.

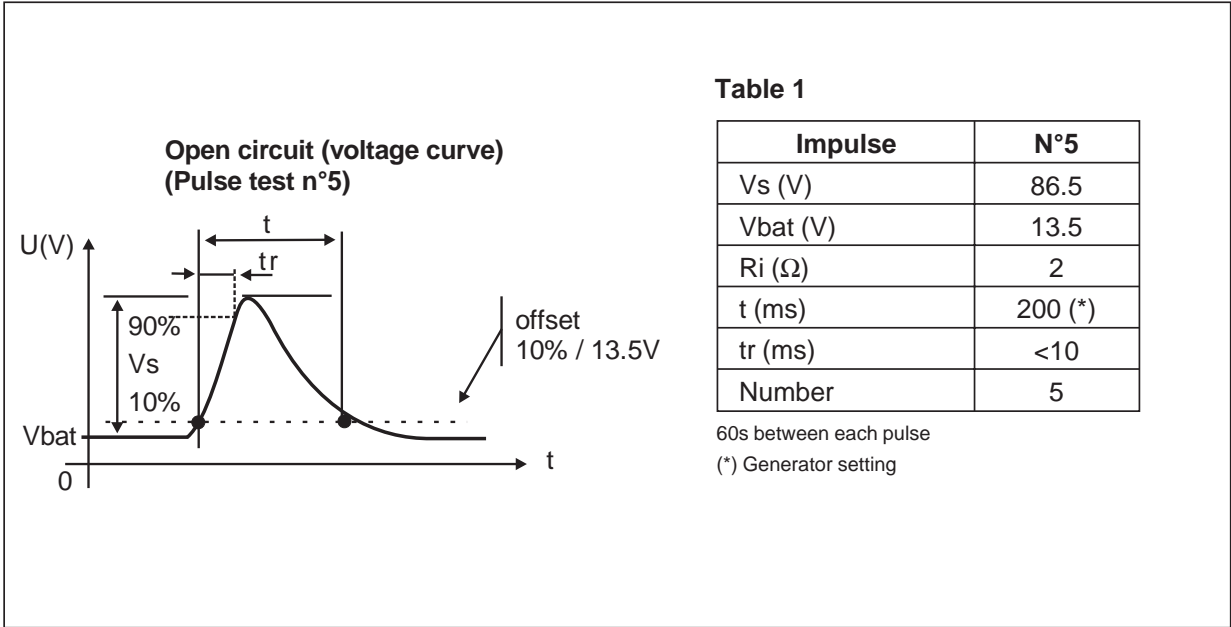
ELECTRICAL CHARACTERISTICS

Symbol	Parameter
$V_{RM}$	Stand-off voltage.
$V_{BR}$	Breakdown voltage.
$V_{CL}$	Clamping voltage.
$I_{PP}$	Peak pulse current.
$\alpha T$	Temperature coefficient of $V_{BR}$ .
C	Capacitance
$I_{RM}$	Leakage current at $V_{RM}$
$V_F$	Peak forward voltage drop

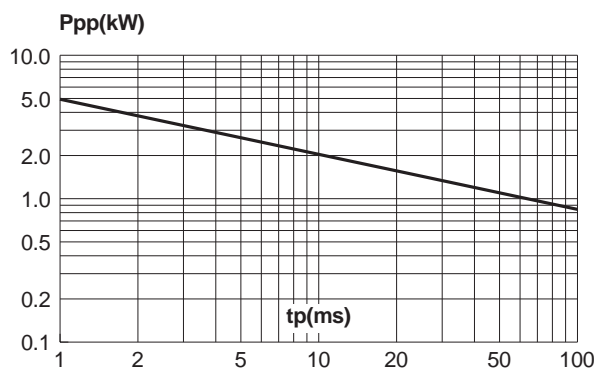


Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$I_{PP}$	Pulse duration: 300ms			30		A
$I_{RM}$	$T_j = 25^{\circ}\text{C}$ $T_j = 85^{\circ}\text{C}$	$V_{RM} = 24\text{ V}$ $V_{RM} = 24\text{ V}$			50 300	$\mu\text{A}$ $\mu\text{A}$
$V_{BR}$	$T_L = 25^{\circ}\text{C}$	$I_R = 1\text{mA}$	25		32	V
$V_{CL}$	$T_L = 85^{\circ}\text{C}$	see table1			40	V
$\alpha T$					10	$10^{-4}/^{\circ}\text{C}$
C	F = 1MHz	$V_R = 0\text{V}$		8000		pF
$V_F$	$I_{FM} = 10\text{A}$			0.9		V

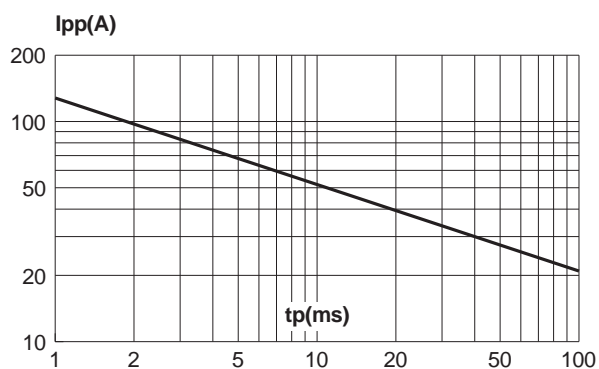
LOAD DUMP TEST GENERATOR CIRCUIT (SCHAFFNER NSG 506 C). Issued from ISO / DTR 7637.



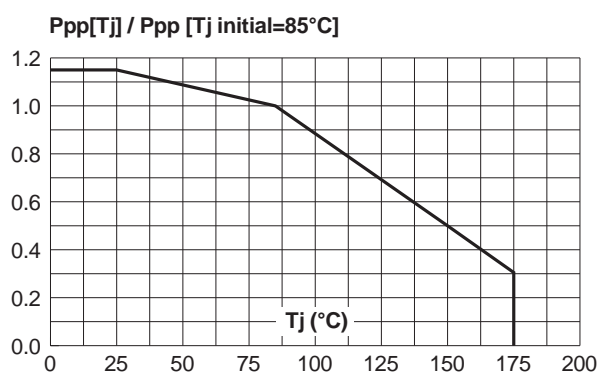
**Fig. 1:** Peak pulse power versus exponential pulse duration ( $T_J$  initial=85°C).



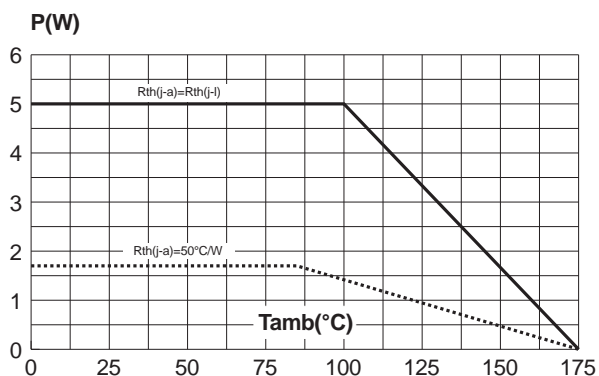
**Fig. 2 :** Peak pulse current versus exponential pulse duration ( $T_J$  initial=85°C).



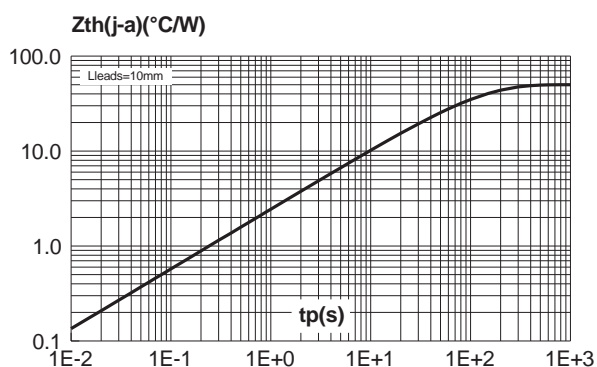
**Fig. 3:** Relative variation of peak pulse power versus junction temperature.



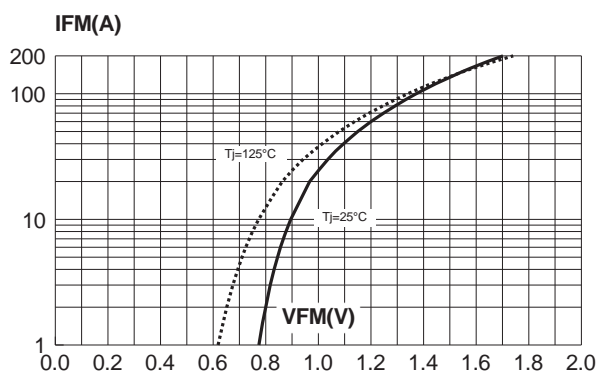
**Fig. 4:** Continuous power dissipation versus ambient temperature.



**Fig. 5:** Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board FR4,  $e(\text{Cu})=35\mu\text{m}$ ,  $\text{SCu}=1\text{cm}^2$ ).

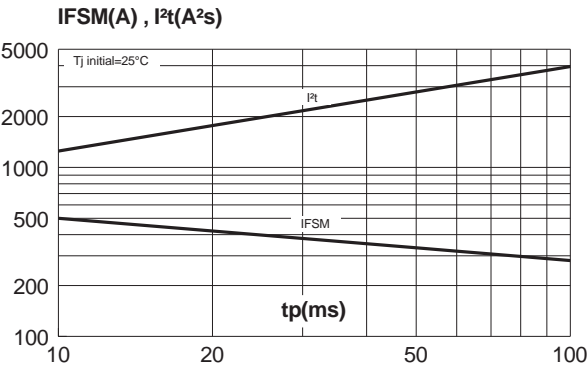


**Fig. 6 :** Peak forward voltage drop versus peak forward current (typical values).

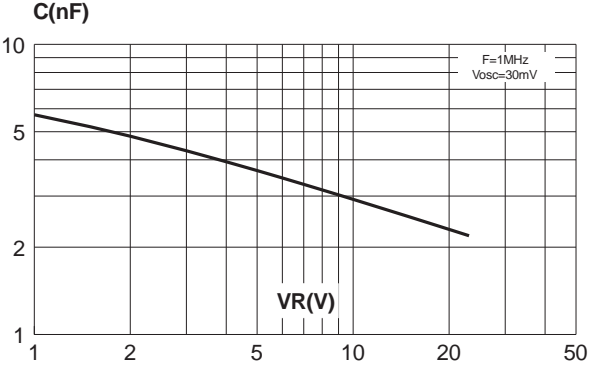


**LDP24A**

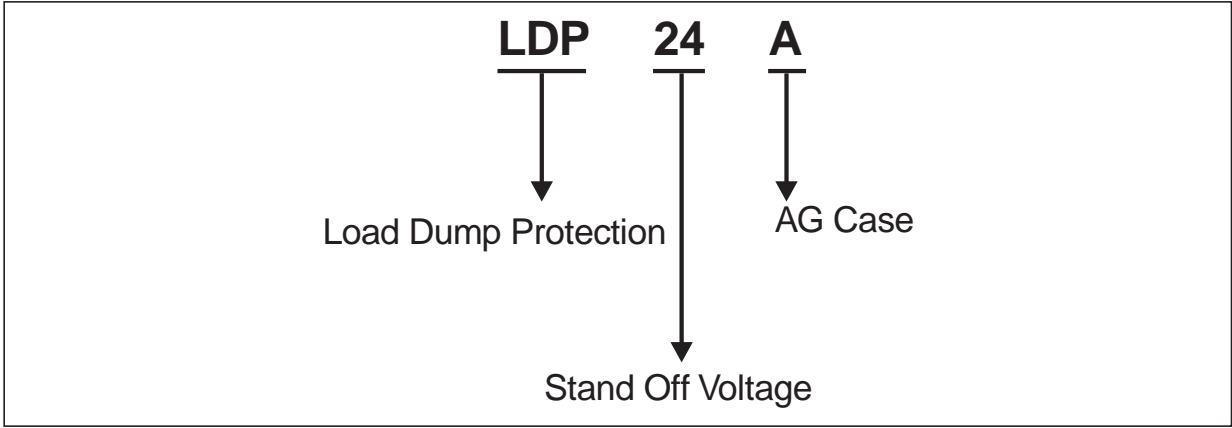
**Fig. 7:** Non repetitive surge peak forward current versus sinusoidal pulse duration and corresponding value of  $I^2t$ .



**Fig. 8:** Junction capacitance versus reverse applied voltage.

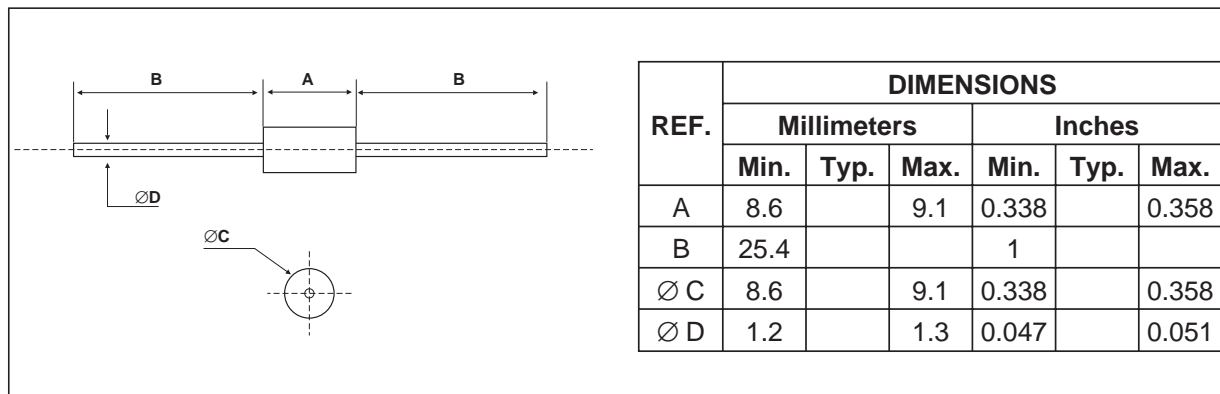


**ORDER CODE**



**PACKAGE MECHANICAL DATA**

R6 (Plastic)



Type	Marking	Package	Weight	Base qty	Delivery mode
LDP24A	LDP24A	R6	2.048 g	100	Ammopack
LDP24ARL	LDP24A	R6	2.048 g	1000	Tape & Reel

- Resin meets UL94-V0

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