



## LDP24A

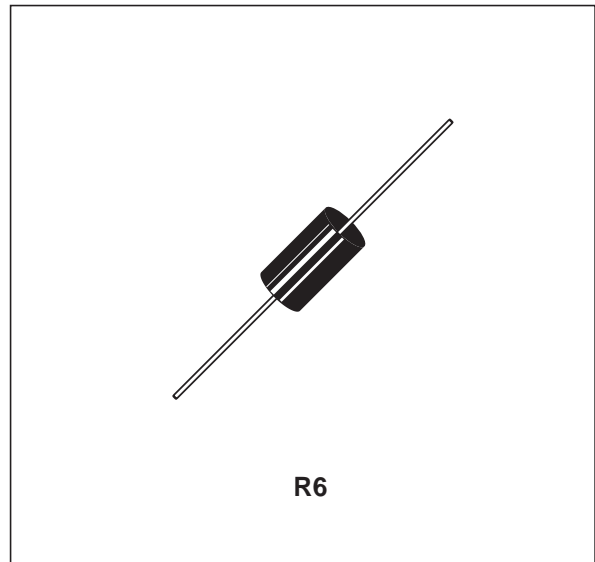
### TRANSIENT PROTECTION LOAD DUMP

#### 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
$V_{PP}$	Peak pulse load dump overvoltage See note 1	$T_{amb} = 85^{\circ}C$	100	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 = $25^{\circ}C$ $t_p = 10$ ms	500	A
$T_{stg}$	Storage temperature range.		- 65 to + 175	$^{\circ}C$
$T_j$	Maximum operating temperature		175	$^{\circ}C$
$T_L$	Maximum lead temperature for soldering during 10 sec at 4 mm from case.		230	$^{\circ}C$

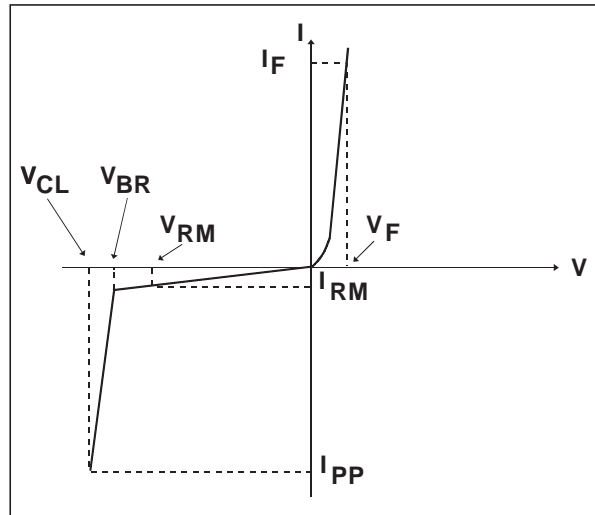
#### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction ambient thermal resistance on infinite heatsink $L_{lead} = 10$ mm	15	$^{\circ}C/W$

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

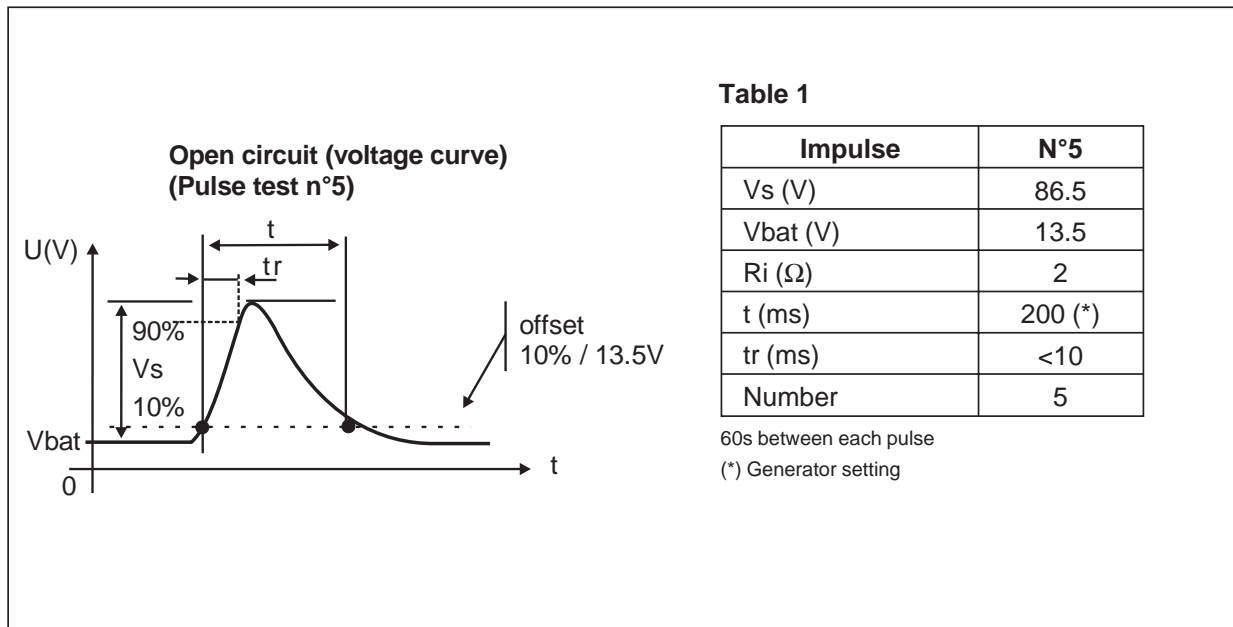
**ELECTRICAL CHARACTERISTICS**

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

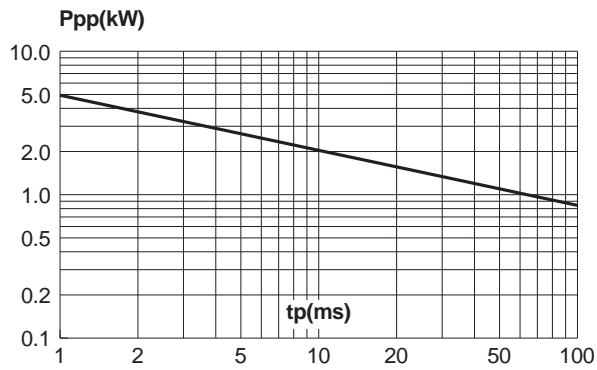


Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$I_{pp}$	Pulse duration: 40ms		30			A
$I_{RM}$	$T_j = 25^\circ\text{C}$ $T_j = 85^\circ\text{C}$	$V_{RM} = 24\text{ V}$ $V_{RM} = 24\text{ V}$			50 300	$\mu\text{A}$ $\mu\text{A}$
$V_{BR}$	$T_j = 25^\circ\text{C}$	$I_R = 1\text{ mA}$	25		32	V
$V_{CL}$	$T_j = 85^\circ\text{C}$	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

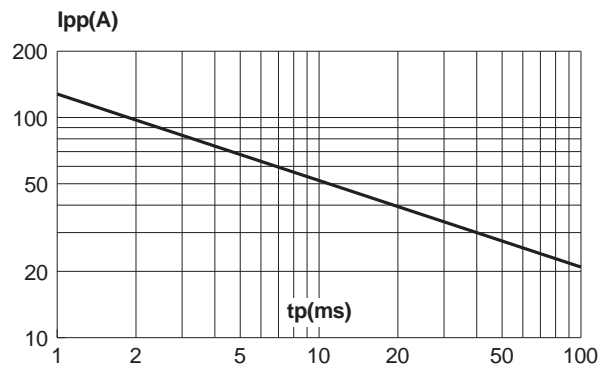
**LOAD DUMP TEST GENERATOR CIRCUIT (SCHAFFNER NSG 506 C). Issued from ISO / DTR 7637.**



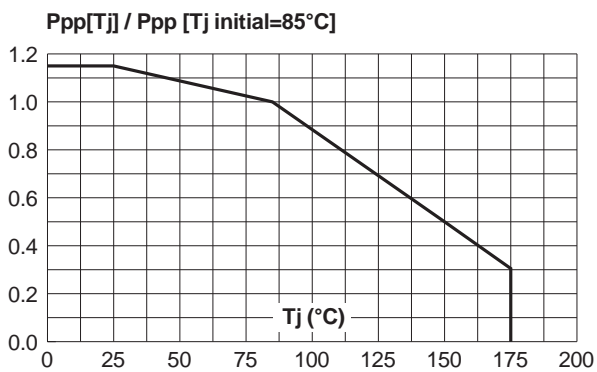
**Fig. 1:** Peak pulse power versus exponential pulse duration ( $T_j$  initial=85°C).



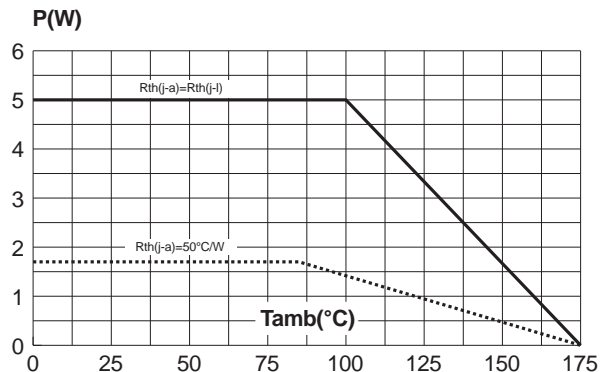
**Fig. 2 :** Peak pulse current versus exponential pulse duration ( $T_j$  initial=85°C).



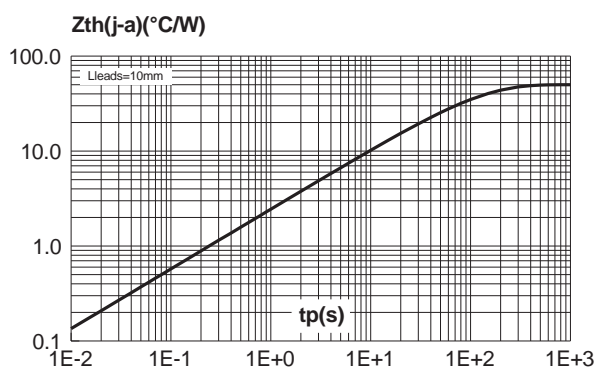
**Fig. 3:** Relative variation of peak pulse power versus junction temperature.



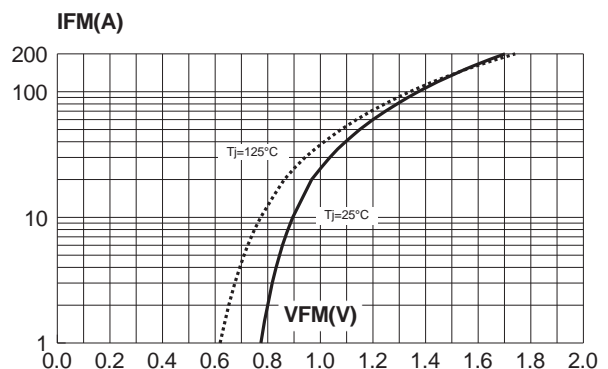
**Fig. 4:** Continuous power dissipation versus ambient temperature.



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

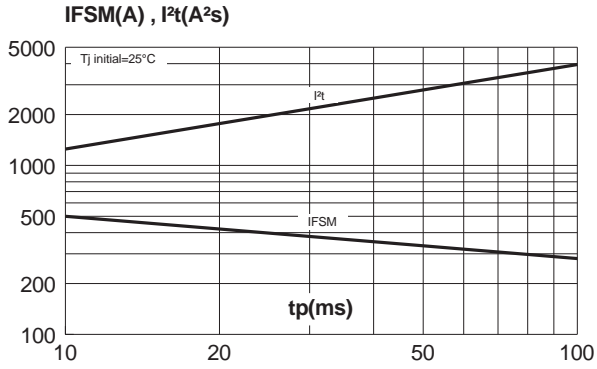


**Fig. 6 :** Peak forward voltage drop versus peak forward current (typical values).

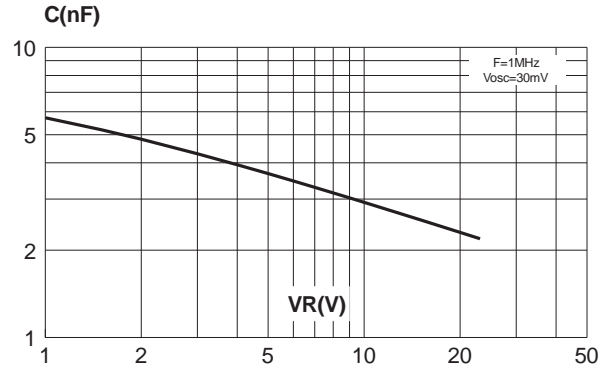


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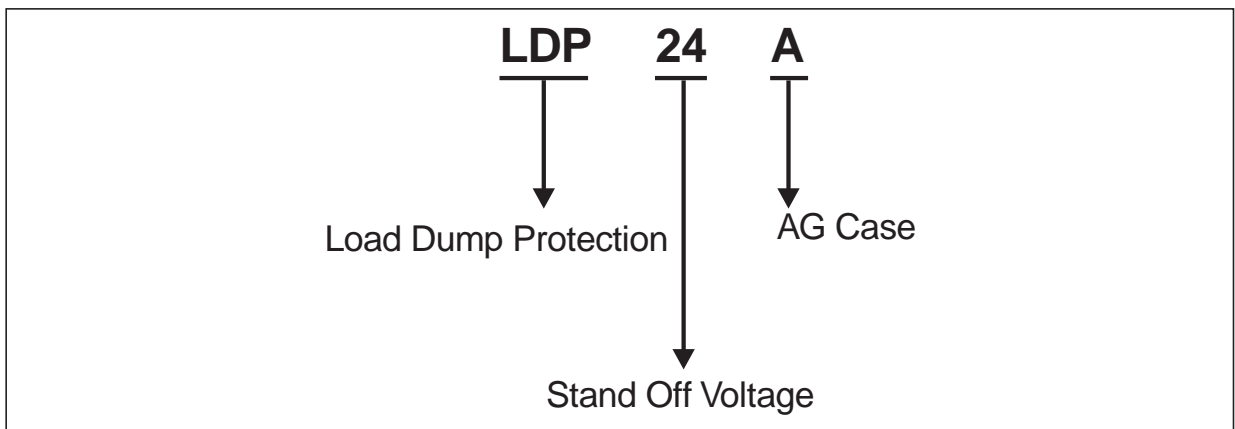
**Fig. 7:** Non repetitive surge peak forward current versus sinusoidal pulse duration and corresponding value of  $I^2t$ .



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

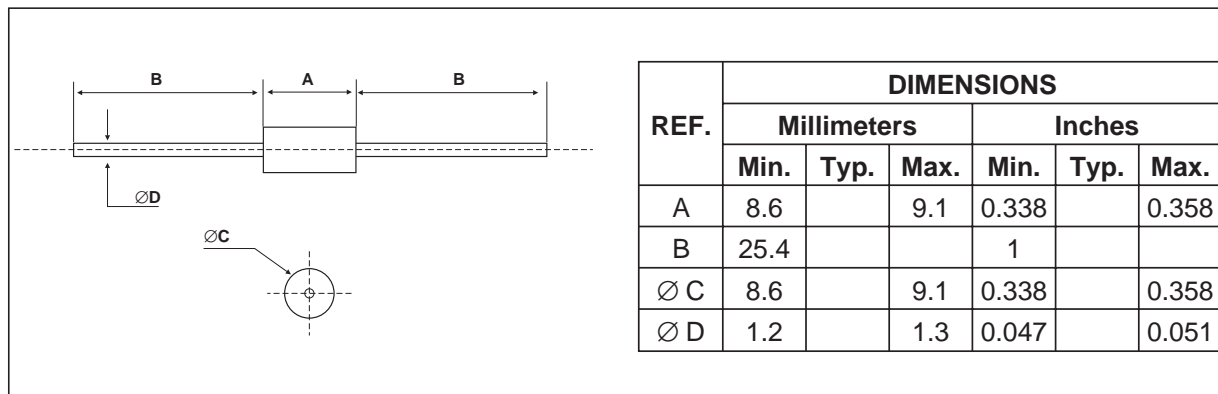


## ORDER CODE



**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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