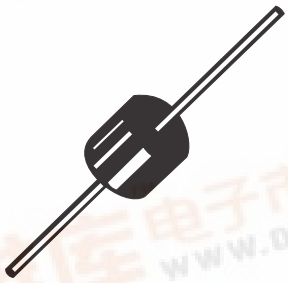
LDP24A

TRANSIENT PROTECTION LOAD DUMP

FEATURES

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



AG
(Plastic)

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°C	100	V
P	Power dissipation on infinite heatsink	T_{amb} = 100°C	5	W
I_{FSM}	Non repetitive surge peak forward current.	T_j initial = 25°C tp = 10 ms	500	A
T_{stg}	Storage temperature range.		- 65 to + 175	°C
T_j	Maximum operating temperature		175	°C
T_L	Maximum lead temperature for soldering during 10 sec at 4 mm from case.		230	°C

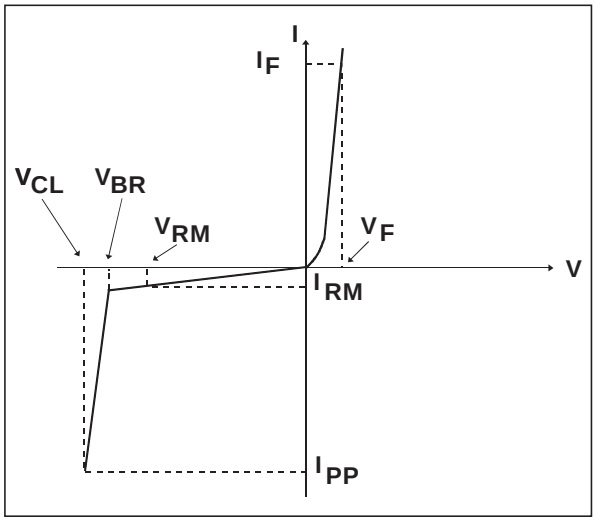
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R_{th} (j-a)	Junction ambient thermal resistance on infinite heatsink L_{lead} = 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.
αT	Temperature coefficient of V_{BR}.
C	Capacitance
I_{RM}	Leakage current at V_{RM}
V_F	Peak forward voltage drop (I_{FM} = 10A) V_F = 0.9 Volt Typ.



Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_{pp}	Pulse duration: 300ms				30	A
I_{RM}	T_L = 25°C T_L = 85°C	V_{RM} = 24 V V_{RM} = 24 V			50 300	µA µA
V_{BR}	T_L = 25°C	I_R = 1mA	25		32	V
V_{CL}	T_L = 85°C see table1				40	V
αT					10	10^{-4}/°C
C	F = 1MHz	V_R = 0V		8000		pF

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

Open circuit (voltage curve)
(Pulse test n°5)

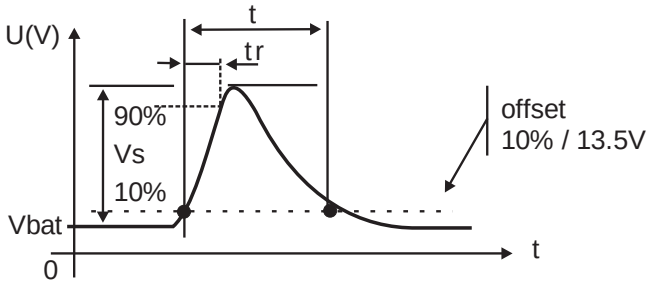


Table 1

Impulse	N°5
Vs (V)	86.5
Vbat (V)	13.5
Ri (Ω)	2
t (ms)	200 (*)
tr (ms)	<10
Number	5

60s between each pulse
(*) Generator setting

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

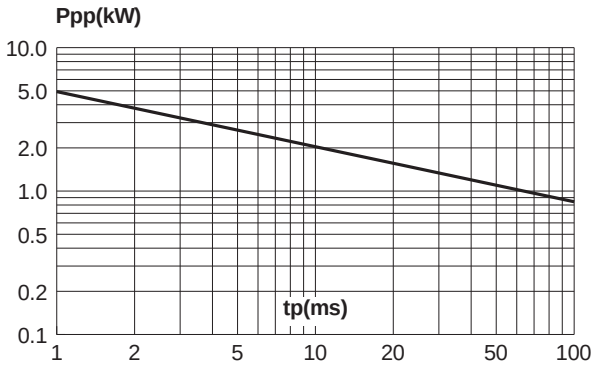


Fig. 2 : Peak pulse current versus exponential pulse duration (Tj initial=85°C).

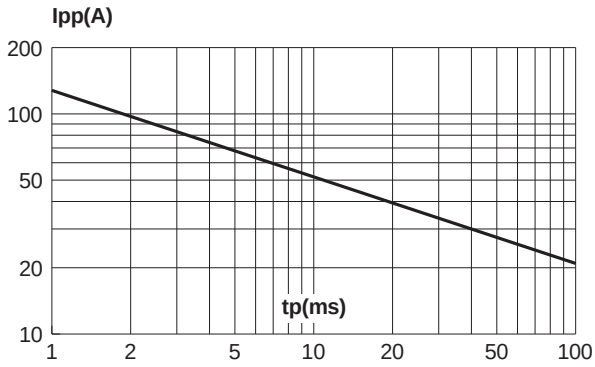


Fig. 3: Relative variation of peak pulse power versus junction temperature.

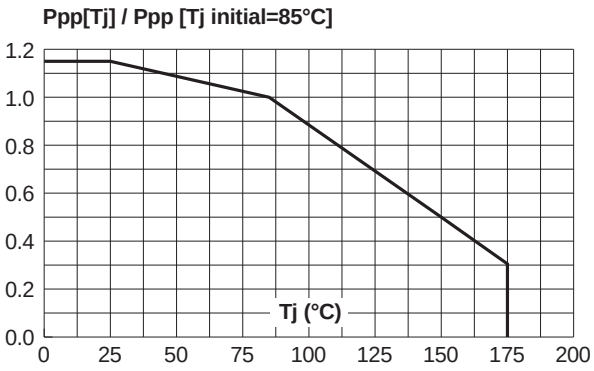


Fig. 4: Continous power dissipation versus ambient temperature.

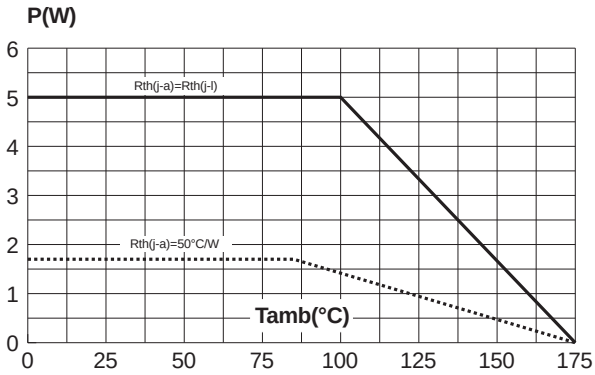


Fig. 5: Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board FR4, e(Cu)=35µm, SCu=1cm^2).

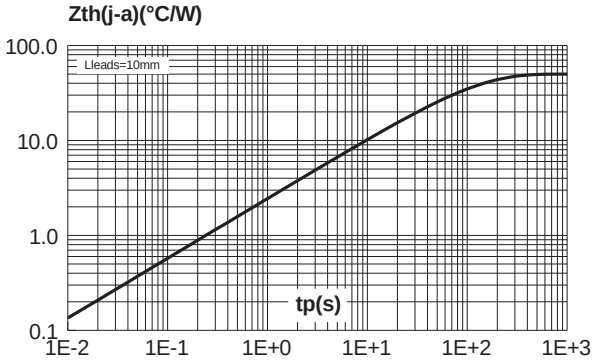


Fig. 6 : Peak forward voltage drop versus peak forward current (typical values).

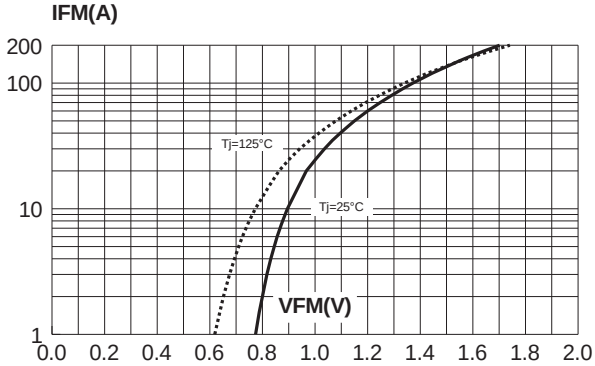


Fig. 7: Non repetitive surge peak forward current versus sinusoidal pulse duration and corresponding value of I^2t.

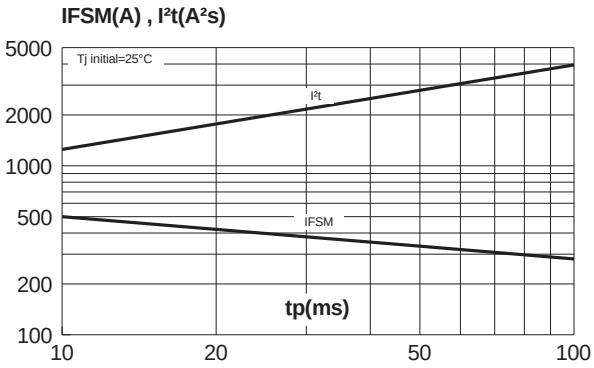
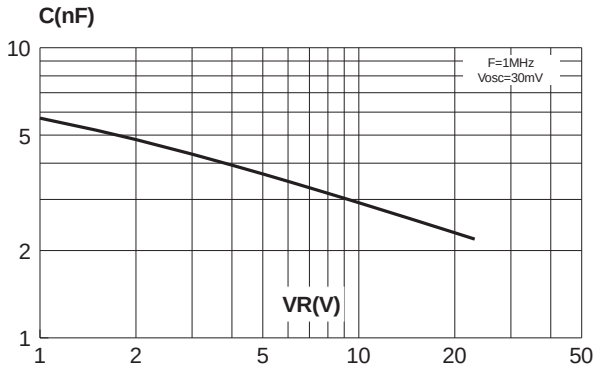
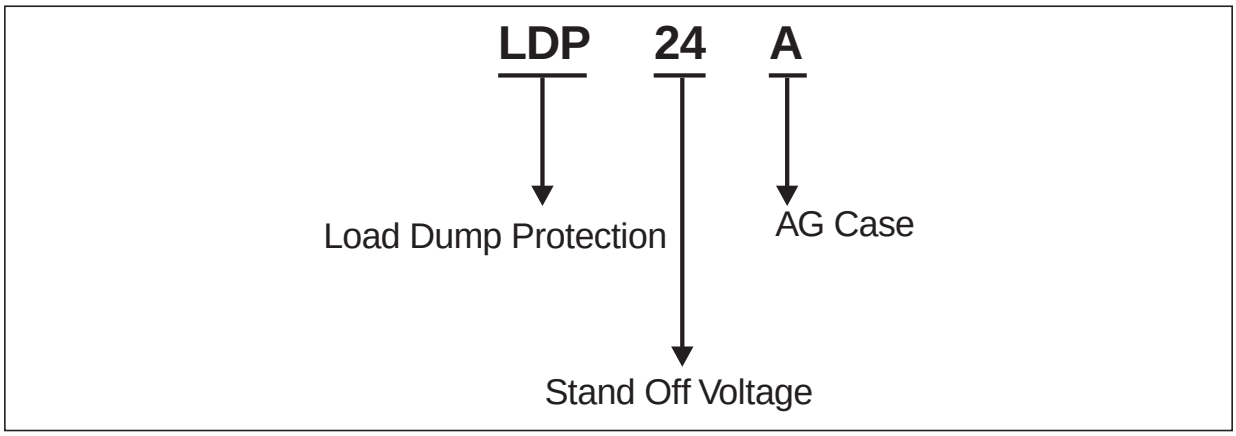


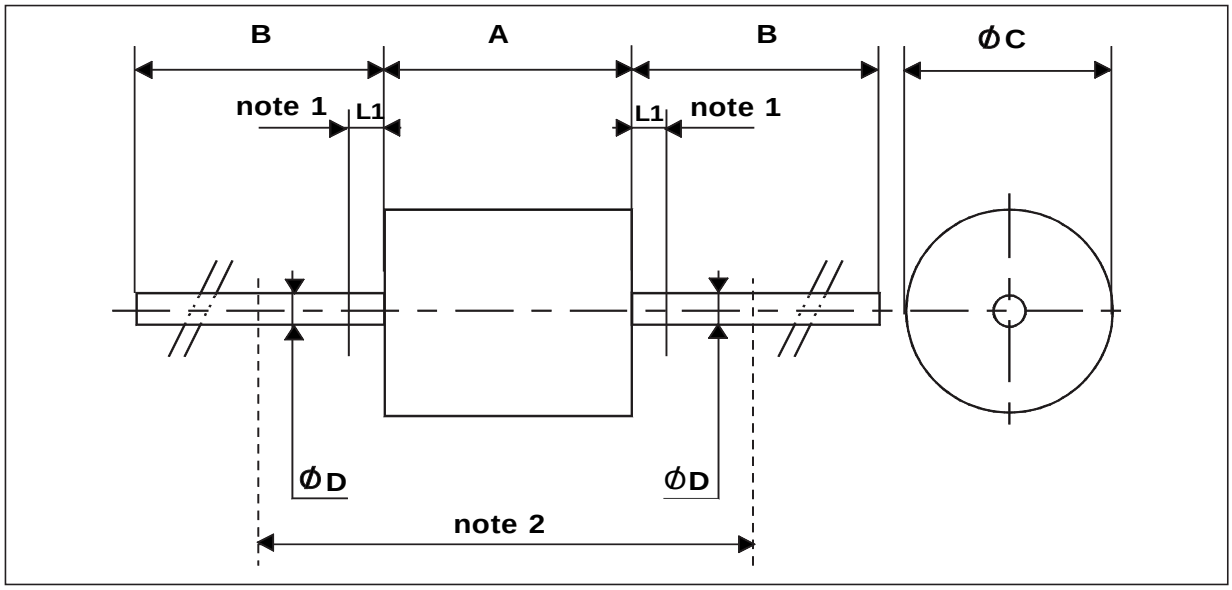
Fig. 8: Junction capacitance versus reverse applied voltage.



ORDER CODE



PACKAGE MECHANICAL DATA
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		
∅ C		8		0.315	
∅ D	1.35	1.45	0.053	0.057	
L1		1.27		0.050	

Type	Marking	Package	Weight	Base qty	Delivery mode
LDP24A	LDP24A	AG	2.16g	100	Ammopack
LDP24ARL	LDP24A	AG	2.16g	1000	Tape & Reel

- Resin meets UL94-V0