

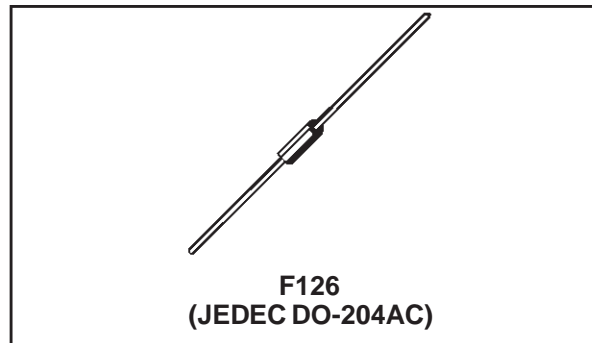


TP30-xxx Series

TRISIL™

FEATURES

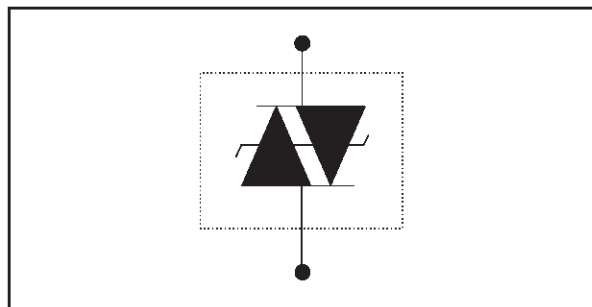
- BIDIRECTIONAL CROWBAR PROTECTION.
- VOLTAGE RANGE: FROM 62 V TO 270 V.
- HOLDING CURRENT :
 $I_H = 150 \text{ mA min.}$
- REPETITIVE PEAK PULSE CURRENT :
 $I_{PP} = 30 \text{ A, } 10/1000 \mu\text{s.}$
- JEDEC REGISTERED PACKAGE OUTLINE



DESCRIPTION

The TP30-xxx series has been designed to protect telecommunication equipment against lightning surges and overvoltages induced by AC power lines.

SCHEMATIC DIAGRAM



COMPLIES WITH THE FOLLOWING STANDARDS:	Peak Surge Voltage (V)	Voltage Waveform (μs)	Current Waveform (μs)	Admissible I_{pp} (A)	Necessary Resistor (Ω)
(CCITT) ITU-K20	1000	10/700	5/310	25	-
(CCITT) ITU-K17	1500	10/700	5/310	38	-
VDE0433	2000	10/700	5/310	40	10
VDE0878	2000	1.2/50	1/20	50	-
IEC-1000-4-5	level 2 level 3	10/700 1.2/50	5/310 8/20	25 50	- -
FCC Part 68, lightning surge type A	1500 800	10/160 10/560	10/160 10/560	65 50	15.5 8.0
FCC Part 68, lightning surge type B	1000	9/720	5/320	25	-
BELLCORE TR-NWT-001089 First level	2500 1000	2/10 10/1000	2/10 10/1000	125 30	15.0 23.3
BELLCORE TR-NWT-001089 Second level	5000	2/10	2/10	125	15.0
CNET I31-24	1000	0.5/700	0.8/310	25	-

TP30-xxx Series

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25°C)

Symbol	Parameter	Value	Unit
P	Power dissipation on infinite heatsink	T _{amb} = 50 °C	3 W
I _{PP}	Peak pulse current	10/1000 μs 8/20 μs	30 A
I _{TSM}	Non repetitive surge peak on-state current	t _p = 20 ms	15 A
I ² t	I ² t value for fusing	t _p = 20 ms	1 A ² s
dV/dt	Critical rate of rise of off-state voltage	V _{RM}	5 kV/μs
T _{stg} T _j	Storage temperature range Maximum junction temperature	- 55 to + 150	°C
T _L	Maximum lead temperature for soldering during 10s at 5mm for case	230	°C

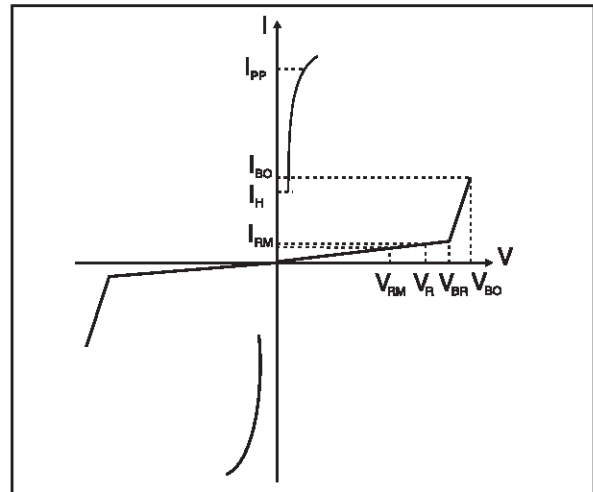
THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R _{th} (j-l)	Junction to leads	60	°C/W
R _{th} (j-a)	Junction to ambient on printed circuit with standard footprint dimension	100	°C/W

ELECTRICAL CHARACTERISTICS

(T_{amb} = 25°C)

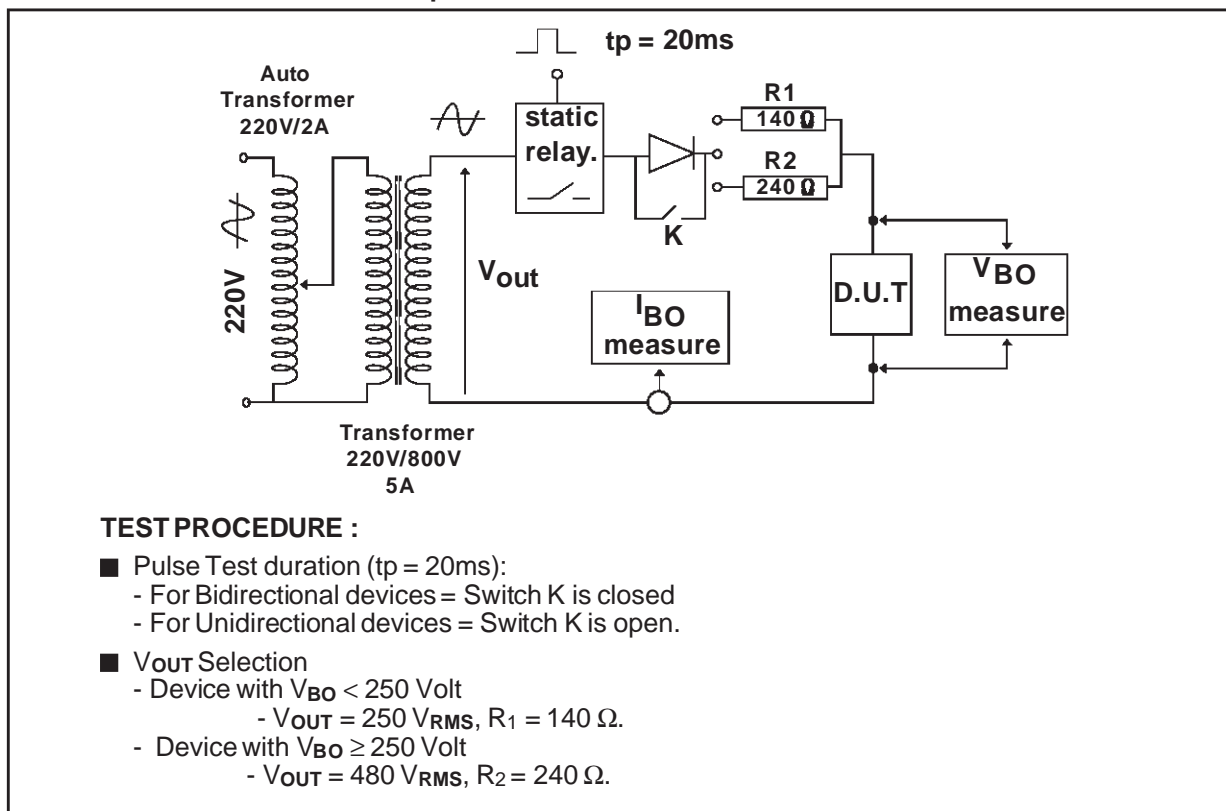
Symbol	Parameter
V _{RM}	Stand-off voltage
I _{RM}	Leakage current at stand-off voltage
V _R	Continuous Reverse voltage
V _{BR}	Breakdown voltage
V _{BO}	Breakover voltage
I _H	Holding current
I _{BO}	Breakover current
I _{PP}	Peak pulse current
C	Capacitance



Type	I_{RM} @ V_{RM}		I_R @ V_R		V_{BO} @ I_{BO}		I_H min note 3 mA	C	
	max μA	V	max note 1 μA	V	max note 2 V	mA		typ note 4 pF	typ note 5
TP30-62	2	56	50	62	82	800	150	50	20
TP30-68	2	61	50	68	90	800	150	50	20
TP30-100	2	90	50	100	133	800	150	40	16
TP30-120	2	108	50	120	160	800	150	40	16
TP30-130	2	117	50	130	173	800	150	35	14
TP30-180	2	162	50	180	240	800	150	35	14
TP30-200	2	180	50	200	267	800	150	30	12
TP30-220	2	198	50	220	293	800	150	30	12
TP30-240	2	216	50	240	320	800	150	30	12
TP30-270	2	243	50	270	360	800	150	30	12

- Note 1:** I_R measured at V_R guarantee $V_{BRmin} \geq V_R$
- Note 2:** Measured at 50 Hz (1 cycle) - See test circuit 1.
- Note 3:** See test circuit 2.
- Note 4:** $V_R = 1V, F = 1MHz.$
- Note 5:** $V_R = 50V, F = 1MHz.$

TEST CIRCUIT 1 FOR I_{BO} and V_{BO} parameters:



TEST CIRCUIT 2 for I_H parameter.

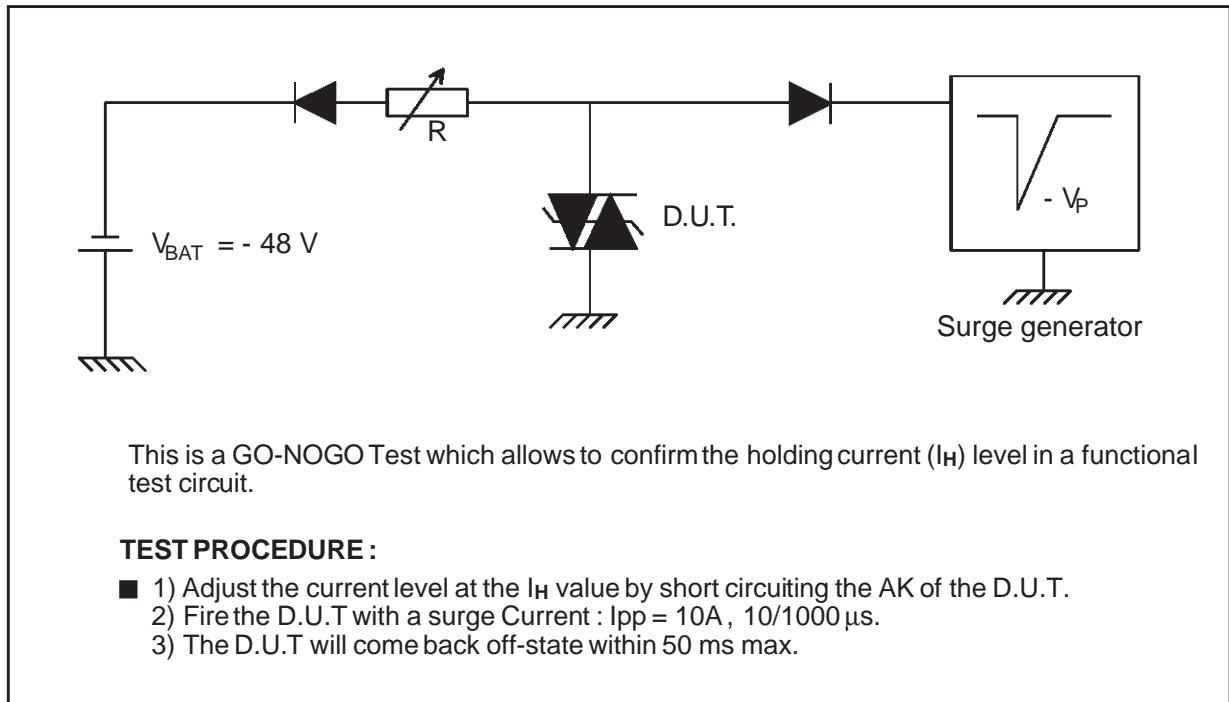


Fig. 1: Non repetitive surge peak on-state current versus overload duration (T_j initial = 25°C).

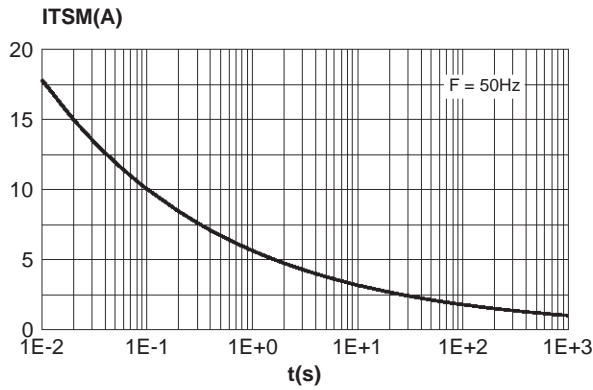


Fig. 2: Relative variation of holding current versus junction temperature.

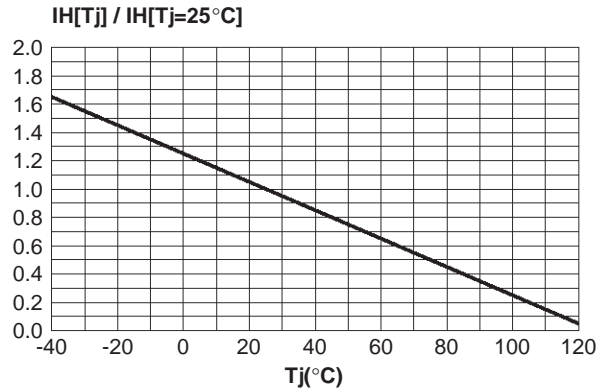


Fig. 3: Relative variation of junction capacitance versus reverse applied voltage (typical values).

Note: For VRM upper than 56V, the curve is extrapolated (dotted line)

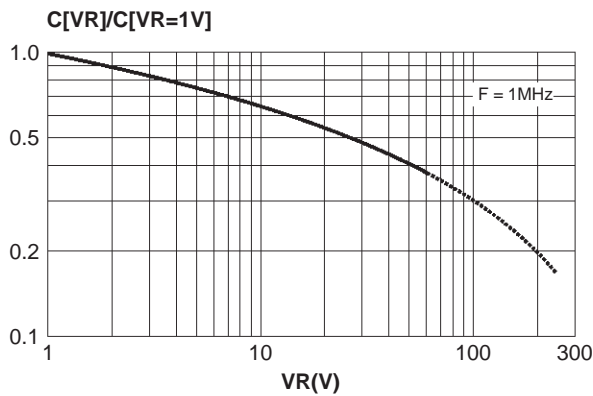


Fig. 4: On-state voltage versus on-state current (typical values).

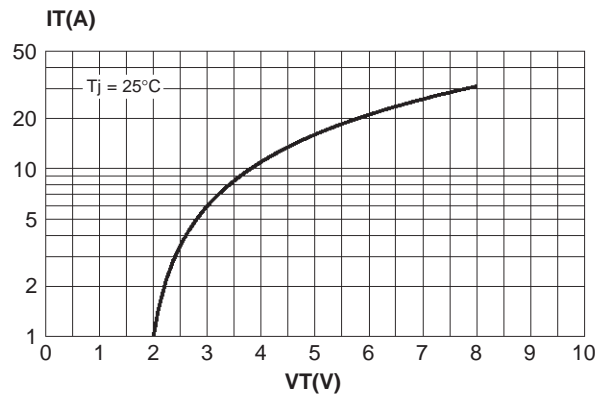


Fig. 5: Variation of thermal impedance junction to ambient versus pulse duration.

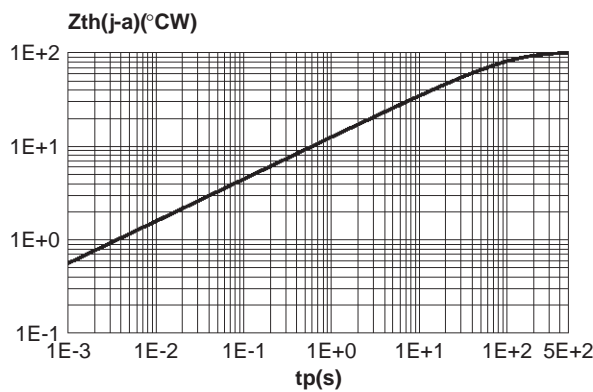
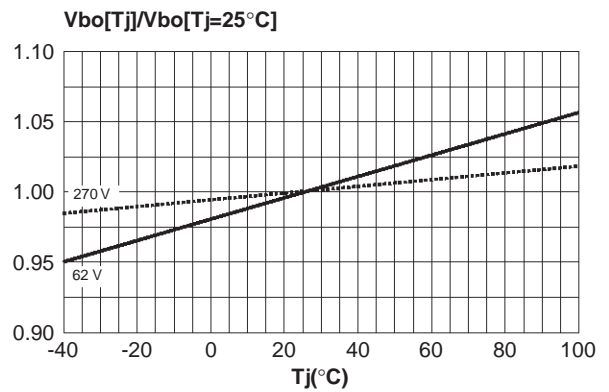
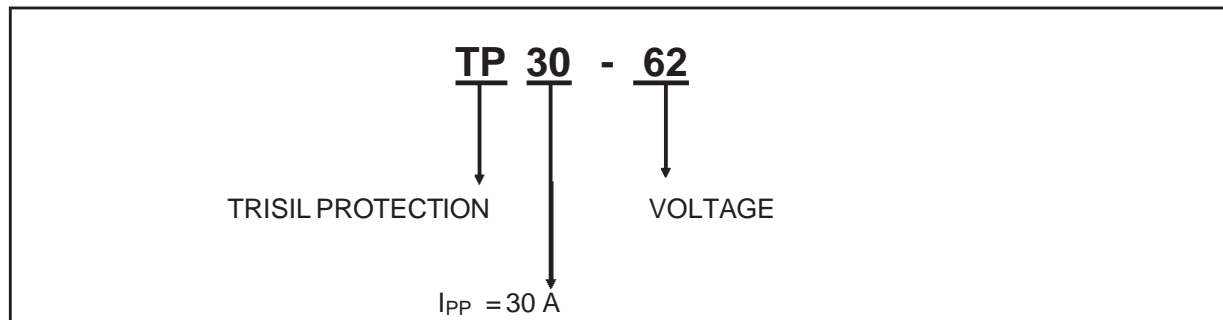


Fig. 6: Relative variation of V_{BO} voltage versus junction temperature.



TP30-xxx Series

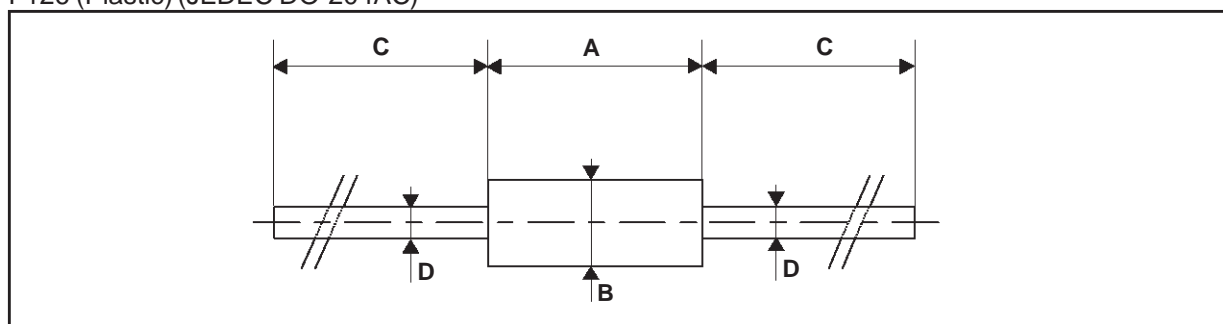
ORDER CODE



MARKING : Logo, Date Code, Part Number.

PACKAGE MECHANICAL DATA

F126 (Plastic) (JEDEC DO-204AC)



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	6.05	6.20	6.35	0.238	0.244	0.250
B	2.95	3.00	3.05	0.116	0.118	0.120
C	26		31	1.024		1.220
D	0.76	0.81	0.86	0.030	0.032	0.034

Packaging : Tape and reel.

Weight : 0.40g

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