



Frontier Electronics Corp.

667 E. COCHRAN STREET, SIMI VALLEY, CA 93065

TEL: (805) 522-9998 FAX: (805) 522-9989

E-mail: frontiersales@frontierusa.com

Web: <http://www.frontierusa.com>

TELECOM EQUIPMENT PROTECTION : TRISIL™

SMTPA62 THRU SMTPA270

FEATURES

- BIDIRECTIONAL CROWBAR PROTECTION
- VOLTAGE RANGE FROM 62V TO 270V
- LOW CAPACITANCE FROM 15PF TO 30PF TYP. @50V
- LOW LEAKAGE CURRENT: IR = 2uA MAX.
- HOLDING CURRENT: IH = 150 mA MIN.
- REPETITIVE PEAK PULSE CURRENT: IPP = 50A (10/1000uS)

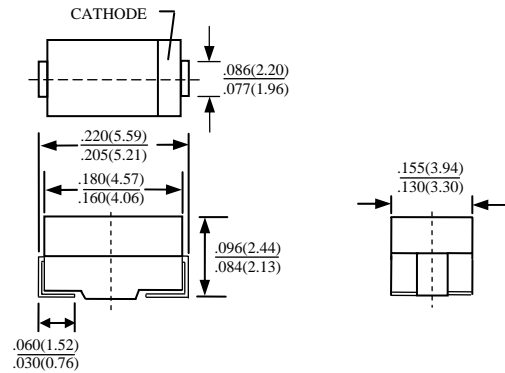
MAIN APPLICATIONS

TELECOMMUNICATION EQUIPMENT SUCH AS:

- ANALOG AND DIGITAL LINE CARDS (xDSL, T1/E1, ISDN..)
- TERMINALS (PHONE, FAX, MODEM...) AND CENTRAL OFFICE EQUIPMENT.

DESCRIPTION

THE SMTPAxxx SERIES HAS BEEN DESIGNED TO PROTECT TELECOMMUNICATION EQUIPMENT AGAINST LIGHTNING AND TRANSIENT INDUCED BY AC POWER LINES. THE PACKAGE / DIE SIZE RATIO HAS BEEN OPTIMIZED BY USING THE SMB PACKAGE



CASE:DO-214AA (SMB)

DIMENSIONS IN INCHES AND (MILLIMETERS)

BENEFITS

TRISILS ARE NOT SUBJECT TO AGEING AND PROVIDE A FAIL SAFE MODE IN SHORT CIRCUIT FOR A BETTER PROTECTION. TRISILS ARE USED TO HELP EQUIPMENT TO MEET VARIOUS SUCH AS UL1950, IEC950/CSA C22.2, UL1459 AND FCC PART68. TRISILS HAVE UL94 V0 RESIN APPROVED. SMB PACKAGE IS JEDEC REGISTERED.(TRISILS ARE UL497B APPROVED – FILE:E136224)

SMTPAxxx

IN COMPLIANCES WITH THE FOLLOWING STANDARDS

STANDARD	PEAK SURGE VOLTAGE (V)	VOLTAGE WAVEFORM (μ s)	REQUIRED PEAK CURRENT (A)	CURRENT WAVEFORM (μ s)	MIMIMUN SERIAL RESISTOR TO MEET STANDARD (Ω)
GR-1089 CORE FIRST LEVEL	2500 1000	2/10 10/1000	500 100	2/10 10/1000	12 10
GR-1089 CORE SECOND LEVEL	5000	2/10	500	2/10	24
GR-1089 CORE INTRA-BUILDING	1500	2/10	100	2/10	0
ITU-T-K20 / K21	6000 1500	10/700	150 37.5	5/310	53 0
ITU-T-K20 (IEC61000-4-2)	6000 8000	1/60 ns	ESD CONTACT DISCHARGE ESD AIR DISCHARGE		0 0
VDE0433	4000 2000	10/700	100 50	5/310	21.5 0
VDE0878	4000 2000	1.2/50	100 50	1/20	0 0
IEC61000-4-5	4000 4000	10/700 1.2/50	100 100	5/310 8/20	21.5 0
FCC PART 68, LIGHTNING SURGE TYPE A	1500 800	10/160 10/560	200 100	10/160 10/560	12.5 6.5
FCC PART 68, LIGHTNING SURGE TYPE B	1000	9/720	25	5/320	0

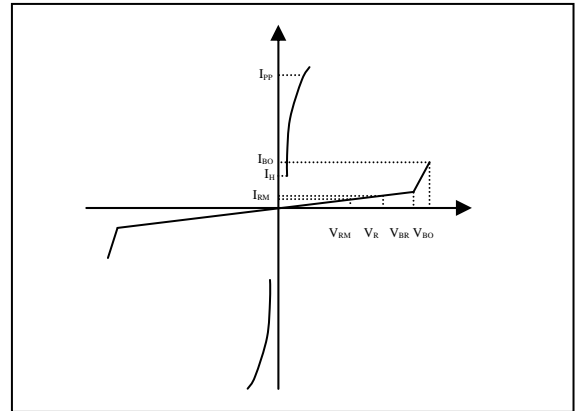
THERMAL RESISTANCES

SYMBOL	PARAMETER	VALUE	UNIT
Rth (j-a)	JUNCTION TO WITH RECOMMENDED FOOTPRINT	100	°C/W
Rth (j-1)	JUNCTION TO LEADS	20	°C/W

ELECTRICAL CHARACTERISTICS

(Tamb = 25°C)

SYMBOL	PARAMETER
VRM	STAND-OFF VOLTAGE
IRM	LEAKAGE CURRENT AT VRM
VR	CONTINUOUS REVERSE VOLTAGE
VBR	BREAKDOWN VOLTAGE
VBO	BREAK OVER VOLTAGE
IH	HOLDING CURRENT
IBO	BREAK OVER CURRENT
IPP	PEAK PULSE CURRENT
C	CAPACITANCE



ABSOLUTE RATING (Tamb = 25°C)

SYMBOL	PARAMETER	VALUE	UNIT	
IPP	REPETITIVE PEAK PULSE CURRENT :	10/1000µ s	50	A
		8/20µ s	100	
		10/560µ s	55	
		5/310µ s	65	
		10/160µ s	75	
		1/20µ s	100	
		2/10µ s	150	
IFS	FAIL SAFE MODE: MAXIMUM CURRENT	8/2µ s	2.5	KA
ITSM	NON REPETITIVE SURGE PEAK ON-STATE CURRENT (SINUSOIDAL)	T = 20ms	30	A
		T = 16.6ms	32	
		T = 0.2s	17	
		T = 2s	9	
I ^{2t}	I ^{2t} VALUE FOR FUSING	T = 16.6ms	8.5	A _{2s}
		T = 20ms	9	
TL	MAXIMUM LEAD TEMPERATURE FOR SOLDERING DURING 10S.		260	°C
Tstg	STORAGE TEMPERATURE RANGE		-55 to + 150	°C
Tj	MAXIMUM JUNCTION TEMPERATURE		150	

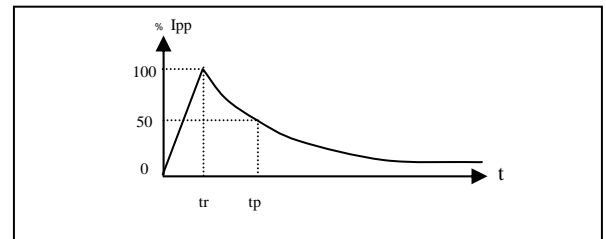
REPETITIVE PEAK PULSE CURRENT

TR : RISE TIME (µ s)

TP : PULSE DURATION TIME (µ s)

EX. : PULSE WAVEFORM 10/1000µ s

TR = 10µ s TP = 1000µ s



ELECTRICAL PARAMETERS (Tamb = 25°C)

type	I _{RM} @VRM MAX		I _R @V _R MAX NOTE		DYNAMIC V _{BO} @ I _{BO} MAX NOTE2		STATIC V _{BO} @ I _{BO} MAX NOTE3		I _H MIN NOTE4	C TYP. NOTE5	C TYP. NOTE6
	μ A	V	μ A	V	V	mA	V	mA	mA	PF	PF
SMTPA62	2	56	50	62	85	800	82	800	150	30	50
SMTPA68		61		68	93		90		150	30	45
SMTPA100		90		100	135		133		150	20	40
SMTPA120		108		120	160		160		150	20	40
SMTPA130		117		130	173		173		150	20	35
SMTPA180		162		180	235		240		150	15	30
SMTPA200		180		200	262		267		150	15	30
SMTPA220		198		220	285		293		150	15	30
SMTPA240		216		240	300		320		150	15	30
SMTPA270		243		270	350		360		150	15	30

NOTE 1 : I_R MEASURED AT V_R GUARANTEE V_{BR} MIN ≥ V_R

NOTE 2 : SEE FUNCTIONAL BREAK OVER VOLTAGE TEST CIRCUIT 1.

NOTE 3 : SEE TEST CIRCUIT 2.

NOTE 4 : SEE FUNCTIONAL HOLDING CURRENT TEST CIRCUIT 3.

NOTE 5 : V_R = 50V BIAS , V_{RMS} = 1V , F = 1MHZ

NOTE 6 : V_R = 2V BIAS , V_{RMS} = 1V , F = 1MHZ

RATINGS AND CHARACTERISTIC CURVE SMTPA62 THRU SMTPA270

FIG. 1-NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS OVERLOAD DURATION (T_J INITIAL = 25°C)

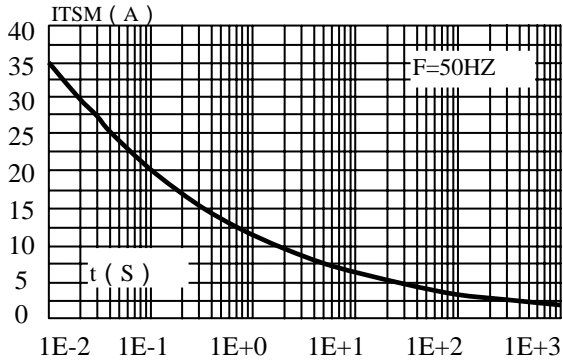


FIG. 2-ON-STATE VOLTAGE VERSUS ON-STATE CURRENT (TYPICAL VALUES) .

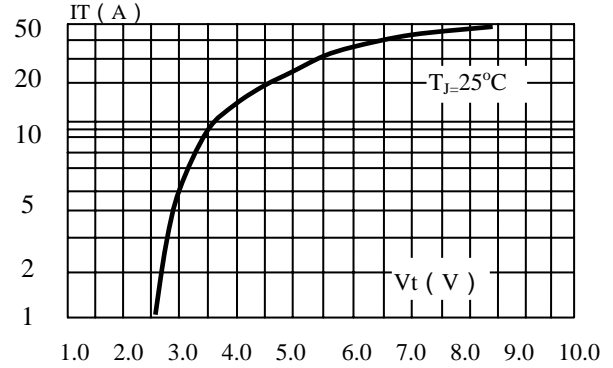


FIG. 3-RELATIVE VARIATION OF HOLDING CURRENT VERSUS JUNCTION TEMPERATURE .

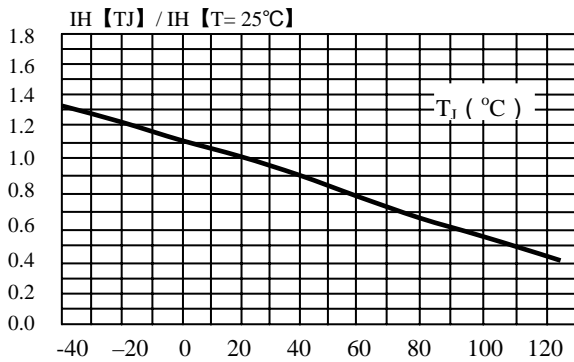


FIG. 4- RELATIVE VARIATION OF BREAK OVER VOLTAGE VERSUS JUNCTION TEMPERATURE .

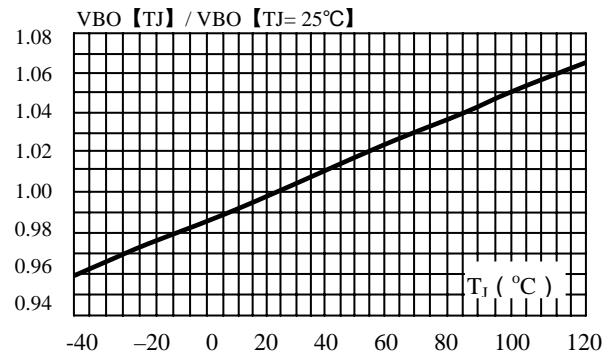


FIG. 5-RELATIVE VARIATION OF LEAKAGE CURRENT VERSUS JUNCTION TEMPERATURE (TYPICAL VALUES) .

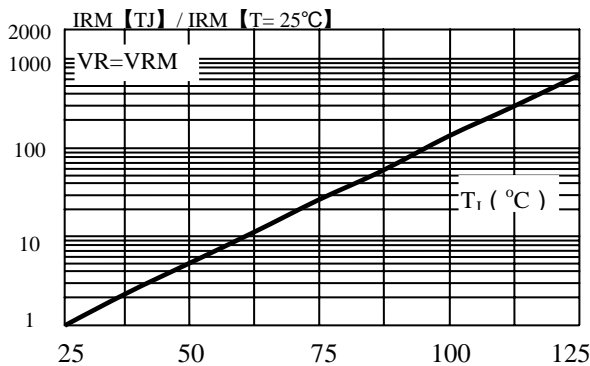


FIG. 6-RELATIVE VARIATION OF THERMAL IMPEDANCE VERSUS PULSE DURATION

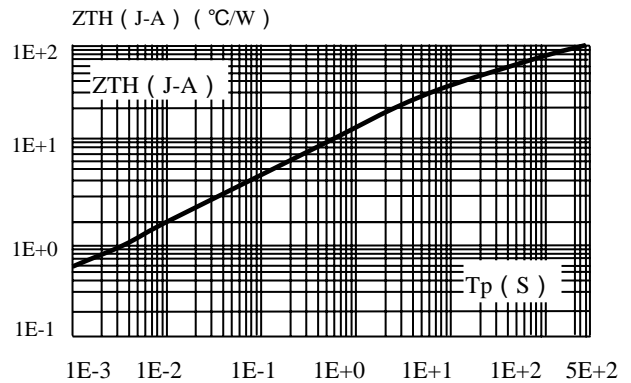


FIG. 7-RELATIVE VARIATION OF JUNCTION CAPACITANCE VERSUS REVERSE VOLTAGE APPLIED (TYPICAL VALUES) .

