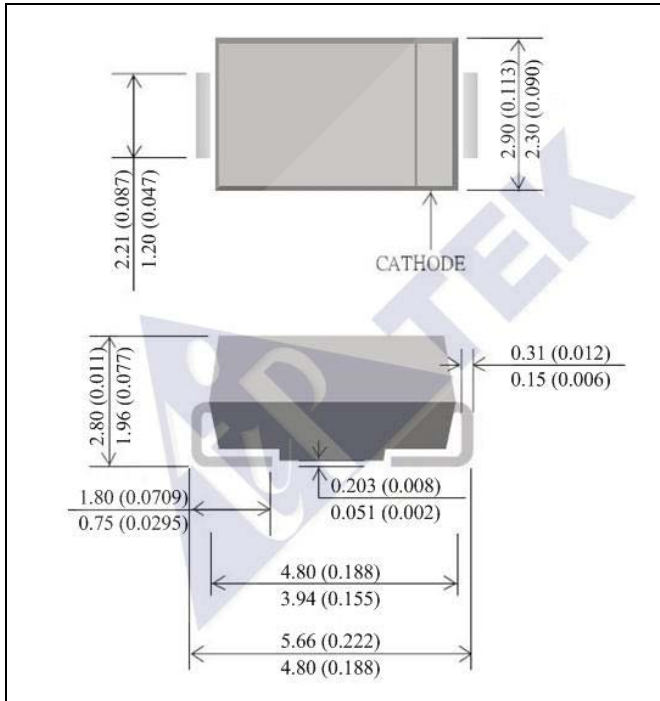


## 400W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR



CASE : DO-214AC(SMA)

DIMENSIONS IN MILLIMETERS AND (INCHES)

### FEATURES

- Glass passivated chip
- 400 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle): 0.01 %
- Low leakage
- Uni and Bidirectional unit.
- Excellent clamping capability
- Very fast response time

### MECHANICAL DATA

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
- Polarity: Color band denotes cathode except Bipolar
- Mounting position: Any
- Pb- Free: P4SMAJ5.0~P4SMAJ440A  
Halogen Free: P4SMAJ5.0-H~P4SMAJ440A-H

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

#### RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED

PARAMETER	SYMBOL	VALUE	UNITS
PEAK PULSE POWER DISSIPATION ON 10/1000 $\mu$ S WAVEFORM (NOTE 1, FIG. 1)	$P_{PPM}$	MINIMUM 400	WATTS
PEAK PULSE CURRENT OF ON 10/1000 $\mu$ S WAVEFORM (NOTE 1, FIG. 3)	$I_{PPM}$	SEE TABLE 1	A
STEADY STATE POWER DISSIPATION AT $T_L=75^\circ\text{C}$ (NOTE 2)	$P_{M(AV)}$	1.0	WATTS
PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF SINE-WAVE SUPERIMPOSED ON RATED LOAD (JEDEC METHOD) (NOTE 3)	$I_{FSM}$	40.0	A
MAXIMUM INSTANTANEOUS FORWARD VOLTAGE AT 25.0A FOR UNIDIRECTIONAL ONLY (NOTE 3 & 4)	$V_F$	3.5	V
OPERATING AND STORAGE TEMPERATURE RANGE	$T_J, T_{STG}$	- 55 TO + 150	$^\circ\text{C}$

- NOTE: 1. NON-REPETITIVE CURRENT PULSE, PER FIG.3 AND DERATED ABOVE  $T_A=25^\circ\text{C}$  PER FIG 2.  
 2. MOUNTED ON 5.0mm<sup>2</sup> COPPER PADS TO EACH TERMINAL  
 3. LEAD TEMPERATURE AT 75 $^\circ\text{C}$  =  $T_L$  PER FIG. 5  
 4. MEASURED ON 8.3ms SINGLE HALF SINE-WAVE. FOR UNI-DIRECTIONAL DEVICES ONLY  
 5. PEAK PULSE POWER WAVEFORM IS 10/1000  $\mu$ S

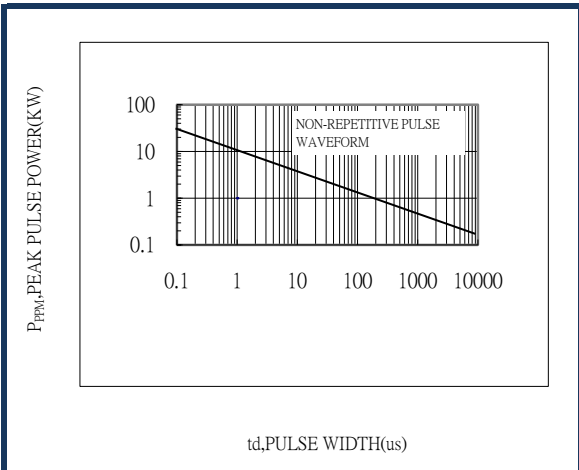
Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current	
			V <sub>RWM</sub>	V <sub>BR @ I<sub>T</sub></sub>		I <sub>R @ V<sub>RWM</sub></sub>				
				Min		Max	UNI			BI
UNI	BI	V	V	V	mA	μA	μA	V	A	
P4SMAJ5.0	P4SMAJ5.0C	5.0	6.40	7.30	10.0	800.0	1600.0	9.6	41.7	
P4SMAJ5.0A	P4SMAJ5.0CA	5.0	6.40	7.00	10.0	800.0	1600.0	9.2	43.5	
P4SMAJ6.0	P4SMAJ6.0C	6.0	6.67	8.15	10.0	800.0	1600.0	11.4	35.1	
P4SMAJ6.0A	P4SMAJ6.0CA	6.0	6.67	7.37	10.0	800.0	1600.0	10.3	38.8	
P4SMAJ6.5	P4SMAJ6.5C	6.5	7.22	8.82	10.0	500.0	1000.0	12.3	32.5	
P4SMAJ6.5A	P4SMAJ6.5CA	6.5	7.22	7.98	10.0	500.0	1000.0	11.2	35.7	
P4SMAJ7.0	P4SMAJ7.0C	7.0	7.78	9.51	10.0	200.0	400.0	13.3	30.1	
P4SMAJ7.0A	P4SMAJ7.0CA	7.0	7.78	8.60	10.0	200.0	400.0	12.0	33.3	
P4SMAJ7.5	P4SMAJ7.5C	7.5	8.33	10.20	1.0	100.0	200.0	14.3	28.0	
P4SMAJ7.5A	P4SMAJ7.5CA	7.5	8.33	9.21	1.0	100.0	200.0	12.9	31.0	
P4SMAJ8.0	P4SMAJ8.0C	8.0	8.89	10.90	1.0	50.0	100.0	15.0	26.7	
P4SMAJ8.0A	P4SMAJ8.0CA	8.0	8.89	9.83	1.0	50.0	100.0	13.6	29.4	
P4SMAJ8.5	P4SMAJ8.5C	8.5	9.44	11.50	1.0	10.0	20.0	15.9	25.2	
P4SMAJ8.5A	P4SMAJ8.5CA	8.5	9.44	10.40	1.0	10.0	20.0	14.4	27.8	
P4SMAJ9.0	P4SMAJ9.0C	9.0	10.00	12.20	1.0	5.0	10.0	16.9	23.7	
P4SMAJ9.0A	P4SMAJ9.0CA	9.0	10.00	11.10	1.0	5.0	10.0	15.4	26.0	
P4SMAJ10	P4SMAJ10C	10.0	11.10	13.60	1.0	5.0	10.0	18.8	21.3	
P4SMAJ10A	P4SMAJ10CA	10.0	11.10	12.30	1.0	5.0	10.0	17.0	23.5	
P4SMAJ11	P4SMAJ11C	11.0	12.20	14.90	1.0	5.0	5.0	20.1	19.9	
P4SMAJ11A	P4SMAJ11CA	11.0	12.20	13.50	1.0	5.0	5.0	18.2	22.0	
P4SMAJ12	P4SMAJ12C	12.0	13.30	16.30	1.0	5.0	5.0	22.0	18.2	
P4SMAJ12A	P4SMAJ12CA	12.0	13.30	14.70	1.0	5.0	5.0	19.9	20.1	
P4SMAJ13	P4SMAJ13C	13.0	14.40	17.60	1.0	5.0	5.0	23.8	16.8	
P4SMAJ13A	P4SMAJ13CA	13.0	14.40	15.90	1.0	5.0	5.0	21.5	18.6	
P4SMAJ14	P4SMAJ14C	14.0	15.60	19.10	1.0	5.0	5.0	25.8	15.5	
P4SMAJ14A	P4SMAJ14CA	14.0	15.60	17.20	1.0	5.0	5.0	23.2	17.2	
P4SMAJ15	P4SMAJ15C	15.0	16.70	20.40	1.0	5.0	5.0	26.9	15.9	
P4SMAJ15A	P4SMAJ15CA	15.0	16.70	18.50	1.0	5.0	5.0	24.4	16.4	
P4SMAJ16	P4SMAJ16C	16.0	17.80	21.80	1.0	5.0	5.0	28.8	13.9	
P4SMAJ16A	P4SMAJ16CA	16.0	17.80	19.70	1.0	5.0	5.0	26.0	15.4	
P4SMAJ17	P4SMAJ17C	17.0	18.90	23.10	1.0	5.0	5.0	30.5	13.1	
P4SMAJ17A	P4SMAJ17CA	17.0	18.90	20.90	1.0	5.0	5.0	27.6	14.5	
P4SMAJ18	P4SMAJ18C	18.0	20.00	24.40	1.0	5.0	5.0	32.2	12.4	
P4SMAJ18A	P4SMAJ18CA	18.0	20.00	22.10	1.0	5.0	5.0	29.2	13.7	
P4SMAJ20	P4SMAJ20C	20.0	22.20	27.10	1.0	5.0	5.0	35.8	11.2	
P4SMAJ20A	P4SMAJ20CA	20.0	22.20	24.50	1.0	5.0	5.0	32.4	12.3	
P4SMAJ22	P4SMAJ22C	22.0	24.40	29.80	1.0	5.0	5.0	39.4	10.2	
P4SMAJ22A	P4SMAJ22CA	22.0	24.40	26.90	1.0	5.0	5.0	35.5	11.3	
P4SMAJ24	P4SMAJ24C	24.0	26.70	32.60	1.0	5.0	5.0	43.0	9.3	
P4SMAJ24A	P4SMAJ24CA	24.0	26.70	29.50	1.0	5.0	5.0	38.9	10.3	

Part Nmber		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current
			VBR @ I T			IR @ VRWM			
		UNI	BI	VRWM	Min	Max	IT	UNI	BI
		V	V	V	mA	µA	µA	V	A
P4SMAJ26	P4SMAJ26C	26.0	28.90	35.30	1.0	5.0	5.0	46.6	8.6
P4SMAJ26A	P4SMAJ26CA	26.0	28.90	31.90	1.0	5.0	5.0	42.1	9.5
P4SMAJ28	P4SMAJ28C	28.0	31.10	38.00	1.0	5.0	5.0	50.0	8.0
P4SMAJ28A	P4SMAJ28CA	28.0	31.10	34.40	1.0	5.0	5.0	45.4	8.8
P4SMAJ30	P4SMAJ30C	30.0	33.30	40.70	1.0	5.0	5.0	53.5	7.5
P4SMAJ30A	P4SMAJ30CA	30.0	33.30	36.80	1.0	5.0	5.0	48.4	8.3
P4SMAJ33	P4SMAJ33C	33.0	36.70	44.90	1.0	5.0	5.0	59.0	6.8
P4SMAJ33A	P4SMAJ33CA	33.0	36.70	40.60	1.0	5.0	5.0	53.3	7.5
P4SMAJ36	P4SMAJ36C	36.0	40.00	48.90	1.0	5.0	5.0	64.3	6.2
P4SMAJ36A	P4SMAJ36CA	36.0	40.00	44.20	1.0	5.0	5.0	58.1	6.9
P4SMAJ40	P4SMAJ40C	40.0	44.40	54.30	1.0	5.0	5.0	71.4	5.6
P4SMAJ40A	P4SMAJ40CA	40.0	44.40	49.10	1.0	5.0	5.0	64.5	6.2
P4SMAJ43	P4SMAJ43C	43.0	47.80	58.40	1.0	5.0	5.0	76.7	5.2
P4SMAJ43A	P4SMAJ43CA	43.0	47.80	52.80	1.0	5.0	5.0	69.4	5.8
P4SMAJ45	P4SMAJ45C	45.0	50.00	61.10	1.0	5.0	5.0	80.3	5.0
P4SMAJ45A	P4SMAJ45CA	45.0	50.00	55.30	1.0	5.0	5.0	72.7	5.5
P4SMAJ48	P4SMAJ48C	48.0	53.30	65.10	1.0	5.0	5.0	85.5	4.7
P4SMAJ48A	P4SMAJ48CA	48.0	53.30	58.90	1.0	5.0	5.0	77.4	5.2
P4SMAJ51	P4SMAJ51C	51.0	56.70	69.30	1.0	5.0	5.0	91.1	4.4
P4SMAJ51A	P4SMAJ51CA	51.0	56.70	62.70	1.0	5.0	5.0	82.4	4.9
P4SMAJ54	P4SMAJ54C	54.0	60.00	73.30	1.0	5.0	5.0	96.3	4.2
P4SMAJ 54A	P4SMAJ54CA	54.0	60.00	66.30	1.0	5.0	5.0	87.1	4.6
P4SMAJ58	P4SMAJ58C	58.0	64.40	78.70	1.0	5.0	5.0	103.0	3.9
P4SMAJ58A	P4SMAJ58CA	58.0	64.40	71.20	1.0	5.0	5.0	93.6	4.3
P4SMAJ60	P4SMAJ60C	60.0	66.70	81.50	1.0	5.0	5.0	107.0	3.7
P4SMAJ60A	P4SMAJ60CA	60.0	66.70	73.70	1.0	5.0	5.0	96.8	4.1
P4SMAJ64	P4SMAJ64C	64.0	71.10	86.40	1.0	5.0	5.0	114.0	3.5
P4SMAJ64A	P4SMAJ64CA	64.0	71.10	78.60	1.0	5.0	5.0	103.0	3.9
P4SMAJ70	P4SMAJ70C	70.0	77.80	95.10	1.0	5.0	5.0	125.0	3.2
P4SMAJ70A	P4SMAJ70CA	70.0	77.80	86.00	1.0	5.0	5.0	113.0	3.5
P4SMAJ75	P4SMAJ75C	75.0	83.30	102.00	1.0	5.0	5.0	134.0	3.0
P4SMAJ75A	P4SMASJ75CA	75.0	83.30	92.10	1.0	5.0	5.0	121.0	3.3
P4SMAJ78	P4SMAJ78C	78.0	86.70	106.00	1.0	5.0	5.0	139.0	2.9
P4SMAJ78A	P4SMAJ78CA	78.0	86.70	95.80	1.0	5.0	5.0	126.0	3.2
P4SMAJ85	P4SMAJ85C	85.0	94.40	115.00	1.0	5.0	5.0	151.0	2.6
P4SMAJ85A	P4SMAJ85CA	85.0	94.40	104.00	1.0	5.0	5.0	137.0	2.9
P4SMAJ90	P4SMAJ90C	90.0	100.00	122.00	1.0	5.0	5.0	160.0	2.5
P4SMAJ90A	P4SMAJ90CA	90.0	100.00	111.00	1.0	5.0	5.0	146.0	2.7
P4SMAJ100	P4SMAJ100C	100.0	111.00	136.00	1.0	5.0	5.0	179.0	2.2
P4SMAJ100A	P4SMAJ100CA	100.0	111.00	123.00	1.0	5.0	5.0	162.0	2.5

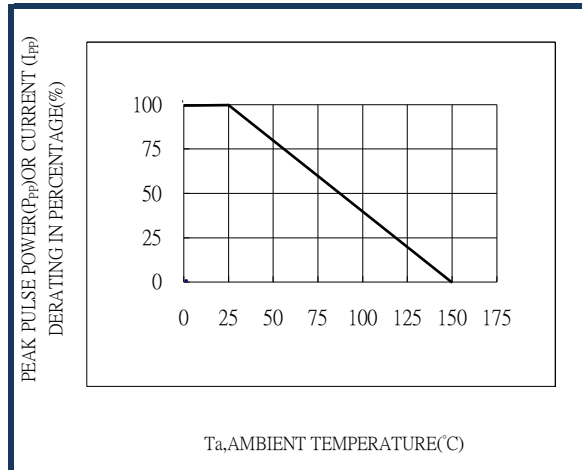
Part Number		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max. Clamp Voltage	Peak Pulse Current
			V <sub>BR</sub> @ I <sub>T</sub>			I <sub>R</sub> @ V <sub>RWM</sub>			
		V <sub>RWM</sub>	Min	Max	I <sub>T</sub>	UNI	BI	V <sub>c</sub> @ I <sub>pp</sub>	I <sub>PP</sub>
UNI	BI	V	V	V	m A	μA	μA	V	A
P4SMAJ110	P4SMAJ110C	110.0	122.00	149.00	1.0	5.0	5.0	196.0	2.0
P4SMAJ110A	P4SMAJ110CA	110.0	122.00	135.00	1.0	5.0	5.0	177.0	2.3
P4SMAJ120	P4SMAJ120C	120.0	133.00	163.00	1.0	5.0	5.0	214.0	1.9
P4SMAJ120A	P4SMAJ120CA	120.0	133.00	147.00	1.0	5.0	5.0	193.0	2.1
P4SMAJ130	P4SMAJ130C	130.0	144.00	176.00	1.0	5.0	5.0	231.0	1.7
P4SMAJ130A	P4SMAJ130CA	130.0	144.00	159.00	1.0	5.0	5.0	209.0	1.9
P4SMAJ150	P4SMAJ150C	150.0	167.00	204.00	1.0	5.0	5.0	268.0	1.5
P4SMAJ150A	P4SMAJ150CA	150.0	167.00	185.00	1.0	5.0	5.0	243.0	1.6
P4SMAJ160	P4SMAJ160C	160.0	178.00	218.00	1.0	5.0	5.0	287.0	1.4
P4SMAJ160A	P4SMAJ160CA	160.0	178.00	197.00	1.0	5.0	5.0	259.0	1.5
P4SMAJ170	P4SMAJ170C	170.0	189.00	231.00	1.0	5.0	5.0	304.0	1.3
P4SMAJ170A	P4SMAJ170CA	170.0	189.00	209.00	1.0	5.0	5.0	275.0	1.4
P4SMAJ180	P4SMAJ180C	180.0	200	245	1.0	5.0	5.0	322	1.24
P4SMAJ180A	P4SMAJ180CA	180.0	200	220	1.0	5.0	5.0	292	1.37
P4SMAJ190	P4SMAJ190C	190.0	211	258	1.0	5.0	5.0	340	1.18
P4SMAJ190A	P4SMAJ190CA	190.0	211	232	1.0	5.0	5.0	308	1.30
P4SMAJ200A	P4SMAJ200CA	200.0	224	247	1.0	5.0	5.0	324	1.23
P4SMAJ220A	P4SMAJ220CA	220.0	246	272	1.0	5.0	5.0	356	1.12
P4SMAJ250A	P4SMAJ250CA	250.0	279	309	1.0	5.0	5.0	405	0.99
P4SMAJ300A	P4SMAJ300CA	300.0	335	371	1.0	5.0	5.0	486	0.82
P4SMAJ350A	P4SMAJ350CA	350.0	391	432	1.0	5.0	5.0	567	0.71
P4SMAJ400A	P4SMAJ400CA	400.0	447	494	1.0	5.0	5.0	648	0.62
P4SMAJ440A	P4SMAJ440CA	440.0	492	543	1.0	5.0	5.0	713	0.56

**NOTE :**

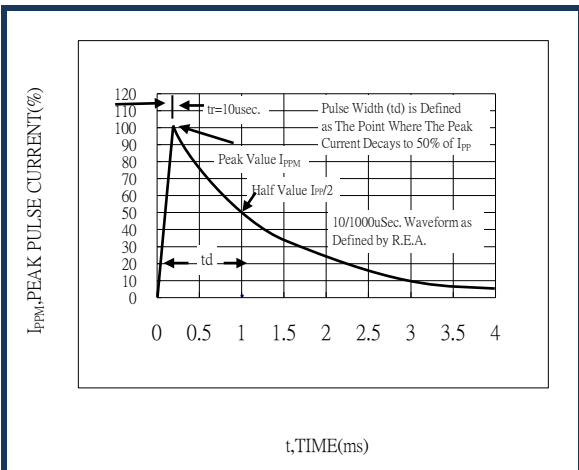
1. VF=3.5V at IF=25A on ½ Square or Equivalent Sine Wave. PW = 8.3ms , Duty Cycle = 4 Pulses per Minute Maximum
2. For Bipolar types with VR of 10 volts and under , the IR limit is doubled
3. Mounted on 5.0mm<sup>2</sup> copper pads to each terminal.
4. For Bidirectional use C suffix for 10% tolerance , CA suffix for 5% tolerance



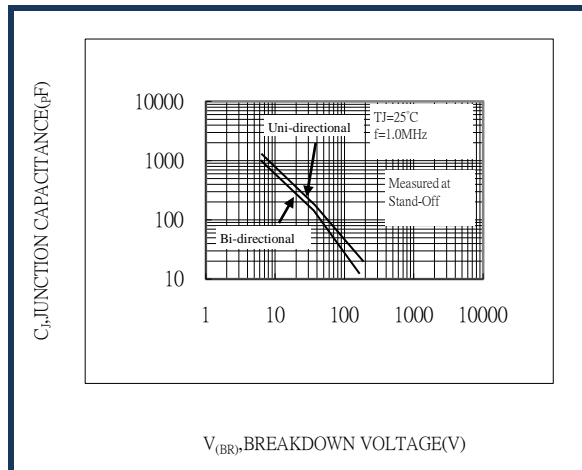
**Fig.1-PEAK PULSE POWER RATING CURVE**



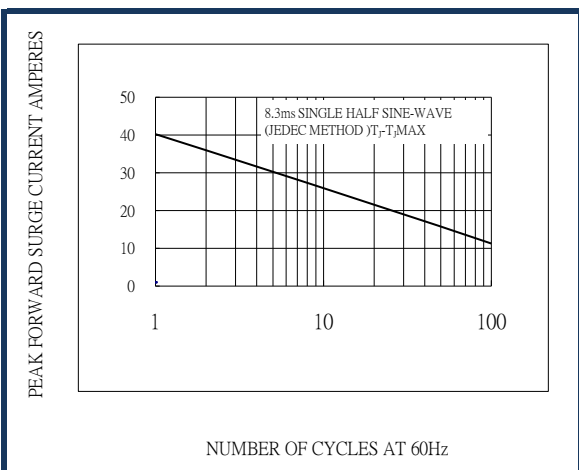
**Fig.2-PULSE DERATING CURVE**



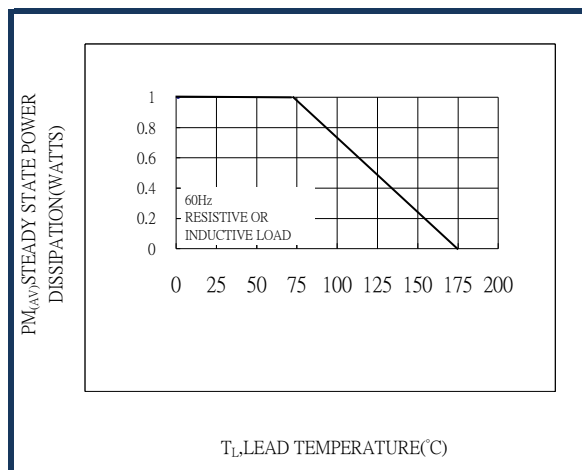
**Fig.3-PULSE WAVEFORM**



**Fig.4-TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL**



**Fig.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**



**Fig.6-STEADY STATE POWER DERATING CURVE**