

Technical Information

Index of Symbols

C_{tot}	Capacitance, diode capacitance	r_{zth}	Thermal differential resistance in the breakdown region
C_L	Capacitance of load capacitor	r_{zu}	Static differential resistance in the breakdown region
f	Frequency	R_d	Damping resistance
f_{in}	Frequency of input voltage	R_G	Generator output resistance
f_{max}	Max. frequency of voltage to be rectified	R_L	Load resistance
f_p	Pulse frequency	R_S	Series resistance
f_O	Series resonance frequency	R_p	Primary copper resistance of transformer
f_{BR}	Hum frequency	R_s	Secondary copper resistance of transformer
f_{Q1}	Cutoff frequency for $Q = 1$	R_t	Protective resistance for rectifiers, e.g. transformer equivalent resistance
G	Smoothing factor	R_{thA}	Thermal resistance junction to ambient air
h	Altitude above sea level	R_{thC}	Thermal resistance junction to case or stud
i_F	Instantaneous forward current	R_{thS}	Thermal resistance heat sink to ambient air
i_R	Instantaneous reverse current	S	Stabilization factor, length of edge of a cooling fin
I_F	Forward current	t	Time
I_{FAV}	Average (rectified) forward current	t_{fr}	Forward recovery time
I_{FRM}	Repetitive peak forward current	t_{on}	Switching-on time
I_{FSM}	Surge forward current (non-repetitive)	t_p	Pulse duration
$I_{F(OV)}$	Overload forward current	t_{rr}	Reverse recovery time
I_R	Reverse (leakage) current	t_{th}	Thermal Run-In-Time
I_{RM}	Reverse pulse current	T	Temperature, duration of a full cycle
I_{RMS}	RMS current	T_C	Case temperature, stud temperature
I_S	Switching current	T_L	Lead temperature
I_Z	Zener current (operating current)	T_S	Storage temperature
I_{ZK}	Zener current at breakdown region	T_{amb}	Ambient temperature
I_{ZM}	Maximum Zener current	T_j	Junction temperature
I_{ZS}	Surge Zener current	V_F	Instantaneous forward voltage
I_{ZT}	Zener test current	V_R	Instantaneous reverse voltage
I_{ZSM}	Surge Zener current (non-repetitive)	V	Voltage
I_{in}	Input current	V_{BR}	Hum Voltage
I_{out}	Output current	$V_{(BR)R}$	Reverse breakdown voltage
I_O	Average (rectified) forward current	V_D	Positive blocking voltage, diffusion potential
L_s	Series inductance	V_{DC}	DC voltage
P	Power, power dissipation	V_F	Forward voltage
P_D	Continuous power	V_R	Reverse voltage, negative blocking voltage
P_{DC}	DC Power ($P_{DC} = V_{DC} \cdot I_{DC}$)	V_{RF}	RF voltage
P_F	Power, generated by forward voltage and forward current	V_{RM}	Peak reverse voltage
P_I	Pulse power	V_{RMS}	RMS voltage
P_{RSM}	Reverse peak power	V_{RRM}	Repetitive peak reverse voltage
P_t	Power rating of transformer	V_{RSM}	Surge peak reverse voltage (non-repetitive)
P_{tot}	Total power dissipation	V_S	Switching voltage, supply voltage
Q	Q-Factor, figure of merit	V_Z	Zener voltage
r_f	Dynamic forward resistance	V_{Z0}	Zener voltage, extra-polated for $I_Z = 0$
r_s	Dynamic series resistance	V_O	DC Voltage, half wave rectification
r_{thA}	Pulse thermal resistance junction to ambient air	V_{fr}	Voltage rise when switching ON (forward recovery)
r_{thC}	Pulse thermal junction to case or stud	V_{in}	Input Voltage
r_{zj}	Dynamic resistance in the breakdown region	V_{out}	Output Voltage

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Z_{ZK}	Zener impedance at I_{ZK}
Z_{ZT}	Zener impedance at I_{ZT}
$\int i^2 dt$	Load integral
α	Angle
α_{IR}	Temperature coefficient of leakage current
α_C	Temperature coefficient of capacitance
α_{VF}	Temperature coefficient of forward voltage
α_{VZ}	Temperature coefficient of Zener voltage
η_V	Rectification efficiency (quotient of the mean value of the rectified voltage and the peak value of the RF signal voltage)
Θ	Angle of current flow
v	Ratio of pulse duration to full cycle, duty cycle
φ	Relative humidity
ω	Angular frequency

