

# Ultra fast Rectifier

DPF30I300PA

## FEATURES

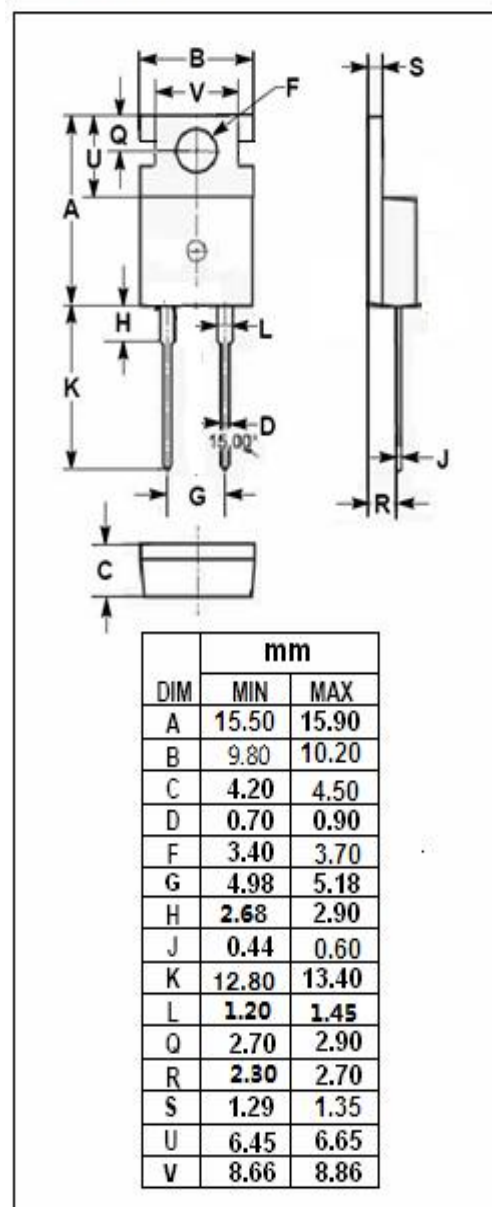
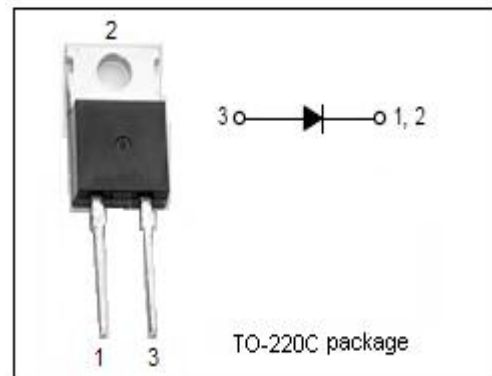
- With TO-220 packaging
- Metal silicon junction, majority carrier conduction
- Low leakage current
- Low power loss, high efficiency
- Guardring for overvoltage protection
- High surge capability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Switching power supply
- High frequency inverters
- Freewheeling diodes
- Reverse battery protection
- Polarity protection applications

## ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>RRM</sub> V <sub>RMS</sub> V <sub>R</sub>	Peak Repetitive Reverse Voltage RMS Voltage DC Blocking Voltage	300	V
I <sub>F(AV)</sub>	Average Rectified Forward Current @T <sub>c</sub> =145°C	30	A
I <sub>FRM</sub>	Repetitive Peak Surge Current (Square Wave, 20kHz)	60	A
I <sub>FSM</sub>	Nonrepetitive Peak Surge Current 8.3 ms single half sine-wave superimposed on rated load conditions;One shot	390	A
P <sub>D</sub>	Maximum Power Dissipation	175	W
T <sub>j</sub>	Junction Temperature	-55~175	°C
T <sub>stg</sub>	Storage Temperature Range	-55~175	°C



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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	0.5	°C/W

ELECTRICAL CHARACTERISTICS (Pulse Test: Pulse Width=300  $\mu$  s, Duty Cycle $\leq$ 1%)

SYMBOL	PARAMETER	CONDITIONS	MAX	UNIT
$V_F$	Maximum Instantaneous Forward Voltage	$I_F = 30A ; T_c = 25^\circ C$ $I_F = 30A ; T_c = 125^\circ C$ $I_F = 60A ; T_c = 25^\circ C$ $I_F = 60A ; T_c = 125^\circ C$	1.17 0.98 1.37 1.21	V
$I_R$	Maximum Instantaneous Reverse Current	$V_R = \text{rated } V_{RRM}; T_c = 25^\circ C$ $T_c = 125^\circ C$	5 250	$\mu A$
$t_{rr}$	Maximum Reverse Recovery Time	$I_F = 1A; dI_F/dt = 200A/\mu s; V_R = 200V$	55	ns

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