



**1000V 30A**  
**APT30DQ100K**  
**APT30DQ100KG\***

\*G Denotes RoHS Compliant, Pb Free Terminal Finish.

## ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

### PRODUCT APPLICATIONS

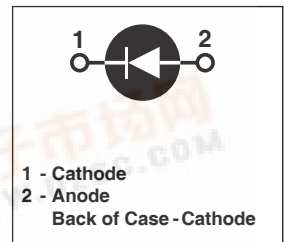
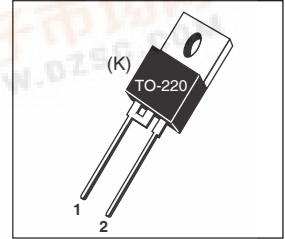
- Anti-Parallel Diode
  - Switchmode Power Supply
  - Inverters
- Free Wheeling Diode
  - Motor Controllers
  - Converters
  - Inverters
- Snubber Diode
- PFC

### PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular TO-220 Package
- Low Forward Voltage
- Low Leakage Current
- Avalanche Energy Rated

### PRODUCT BENEFITS

- Low Losses
- Low Noise Switching
- Cooler Operation
- Higher Reliability Systems
- Increased System Power Density



### MAXIMUM RATINGS

All Ratings:  $T_C = 25^\circ\text{C}$  unless otherwise specified.

Symbol	Characteristic / Test Conditions	APT30DQ100K(G)	UNIT
$V_R$	Maximum D.C. Reverse Voltage	1000	Volts
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		
$V_{RWM}$	Maximum Working Peak Reverse Voltage		
$I_{F(AV)}$	Maximum Average Forward Current ( $T_C = 120^\circ\text{C}$ , Duty Cycle = 0.5)	30	Amps
$I_{F(RMS)}$	RMS Forward Current (Square wave, 50% duty)	40	
$I_{FSM}$	Non-Repetitive Forward Surge Current ( $T_J = 45^\circ\text{C}$ , 8.3ms)	150	
$E_{AVL}$	Avalanche Energy (1A, 40mH)	20	mJ
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to 175	$^\circ\text{C}$
$T_L$	Lead Temperature for 10 Sec.	300	

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT	
$V_F$	Forward Voltage		$I_F = 30\text{A}$	2.5	3.0	Volts
			$I_F = 60\text{A}$	3.06		
			$I_F = 30\text{A}, T_J = 125^\circ\text{C}$	1.92		
$I_{RM}$	Maximum Reverse Leakage Current		$V_R = 1000\text{V}$		100	$\mu\text{A}$
			$V_R = 1000\text{V}, T_J = 125^\circ\text{C}$		500	
$C_T$	Junction Capacitance, $V_R = 200\text{V}$		25		pF	

**DYNAMIC CHARACTERISTICS**

**APT30DQ100K(G)**

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
$t_{rr}$	Reverse Recovery Time	$I_F = 1A, di_F/dt = -100A/\mu s, V_R = 30V, T_J = 25^\circ C$	-	22		ns
$t_{rr}$	Reverse Recovery Time		-	240		
$Q_{rr}$	Reverse Recovery Charge	$I_F = 30A, di_F/dt = -200A/\mu s, V_R = 66700V, T_C = 25^\circ C$	-	260		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	3	-	Amps
$t_{rr}$	Reverse Recovery Time	$I_F = 30A, di_F/dt = -200A/\mu s, V_R = 667V, T_C = 125^\circ C$	-	300		ns
$Q_{rr}$	Reverse Recovery Charge		-	1250		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	7	-	Amps
$t_{rr}$	Reverse Recovery Time	$I_F = 30A, di_F/dt = -1000A/\mu s, V_R = 667V, T_C = 125^\circ C$	-	140		ns
$Q_{rr}$	Reverse Recovery Charge		-	2200		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	25		Amps

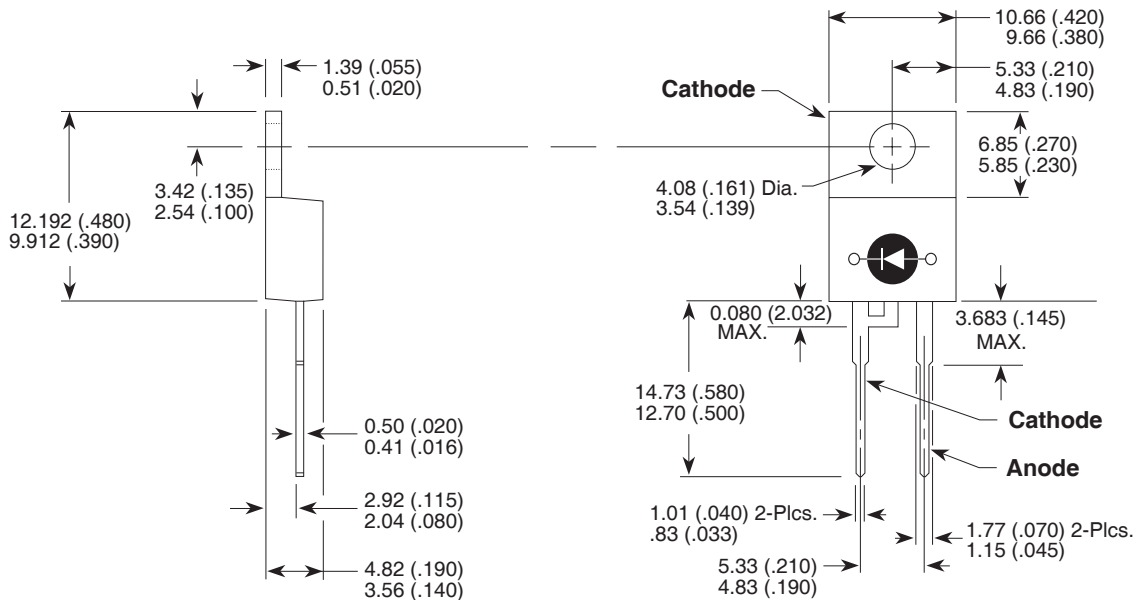
**THERMAL AND MECHANICAL CHARACTERISTICS**

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			.88	$^\circ C/W$
$W_T$	Package Weight		0.07		oz
			9.9		g
Torque	Maximum Mounting Torque			10	lb•in
				1.1	N•m

APT Reserves the right to change, without notice, the specifications and information contained herein.

**TO-220 (K) Package Outline**

Ⓜ 100% Sn



Dimensions in Millimeters and (Inches)