

ULTRAFAST SOFT RECOVERY RECTIFIER DIODE

PRODUCT APPLICATIONS

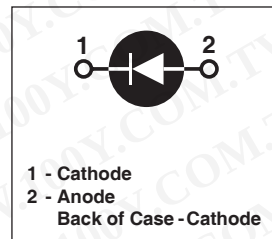
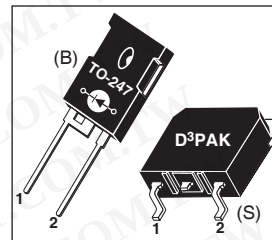
- Anti-Parallel Diode
 - Switchmode Power Supply
 - Inverters
- Free Wheeling Diode
 - Motor Controllers
 - Converters
 - Inverters
- Snubber Diode
- PFC

PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular TO-247 Package or Surface Mount D³PAK 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



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MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions	APT30DQ120B_S(G)	UNIT
V_R	Maximum D.C. Reverse Voltage	1200	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
$I_{F(AV)}$	Maximum Average Forward Current ($T_C = 110^\circ\text{C}$, Duty Cycle = 0.5)	30	Amps
$I_{F(RMS)}$	RMS Forward Current (Square wave, 50% duty)	55	
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 45^\circ\text{C}$, 8.3ms)	210	
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		$I_F = 30\text{A}$	2.8	Volts
			$I_F = 60\text{A}$	3.4	
			$I_F = 30\text{A}, T_J = 125^\circ\text{C}$	2.1	
I_{RM}	Maximum Reverse Leakage Current		$V_R = 1200\text{V}$	100	μA
			$V_R = 1200\text{V}, T_J = 125^\circ\text{C}$	500	
C_T	Junction Capacitance, $V_R = 200\text{V}$		34		pF

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
t_{rr}	Reverse Recovery Time	$I_F = 1A$, $di_F/dt = -100A/\mu s$, $V_R = 30V$, $T_J = 25^\circ C$	-	24		ns
t_{rr}	Reverse Recovery Time	$I_F = 30A$, $di_F/dt = -200A/\mu s$ $V_R = 667V$, $T_C = 25^\circ C$	-	320		
Q_{rr}	Reverse Recovery Charge		-	480		nC
I_{RRM}	Maximum Reverse Recovery Current		-	4	-	Amps
t_{rr}	Reverse Recovery Time	$I_F = 30A$, $di_F/dt = -200A/\mu s$ $V_R = 667V$, $T_C = 125^\circ C$	-	360		ns
Q_{rr}	Reverse Recovery Charge		-	1800		nC
I_{RRM}	Maximum Reverse Recovery Current		-	8	-	Amps
t_{rr}	Reverse Recovery Time	$I_F = 30A$, $di_F/dt = -1000A/\mu s$ $V_R = 667V$, $T_C = 125^\circ C$	-	190		ns
Q_{rr}	Reverse Recovery Charge		-	2800		nC
I_{RRM}	Maximum Reverse Recovery Current		-	25		Amps

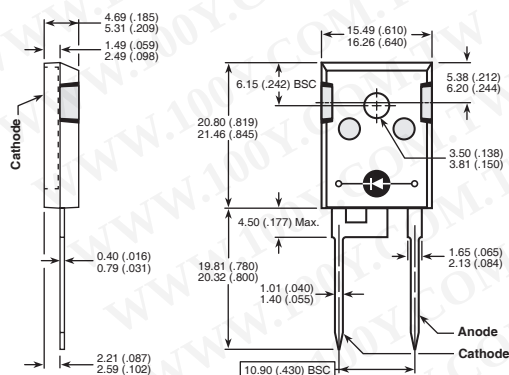
THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
R _{θJC}	Junction-to-Case Thermal Resistance			.80	°C/W
W _T	Package Weight		0.22		oz
			5.9		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-247 Package Outline

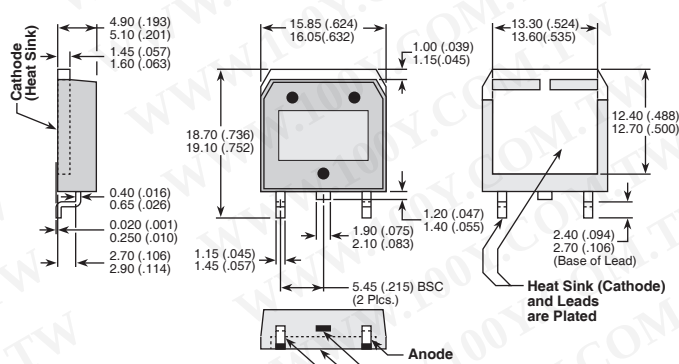
(e1) SAC: Tin, Silver, Copper



Dimensions in Millimeters and (Inches)

D³PAK Package Outline

(e3) 100% Sn



Dimensions in Millimeters (Inches)