

ULTRAFAST SOFT RECOVERY RECTIFIER DIODE
PRODUCT APPLICATIONS

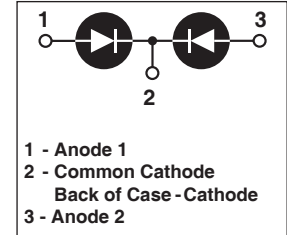
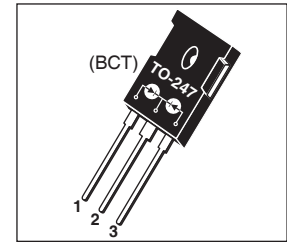
- Anti-Parallel Diode
 - Switchmode Power Supply
 - Inverters
- Free Wheeling Diode
 - Motor Controllers
 - Converters
 - Inverters
- Snubber Diode
- PFC

PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular TO-247 Package
- 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 Per Leg: $T_C = 25^\circ\text{C}$ unless otherwise specified.

Symbol	Characteristic / Test Conditions	APT30DQ120BCT(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	°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	3.3	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

DYNAMIC CHARACTERISTICS

APT30DQ120BCT(G)

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
t_{rr}	Reverse Recovery Time	$I_F = 1A, di_F/dt = -100A/\mu s, V_R = 30V, T_J = 25^\circ C$	-	24		ns
t_{rr}	Reverse Recovery Time		-	320		
Q_{rr}	Reverse Recovery Charge	$I_F = 30A, di_F/dt = -200A/\mu s, V_R = 667V, T_C = 25^\circ C$	-	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

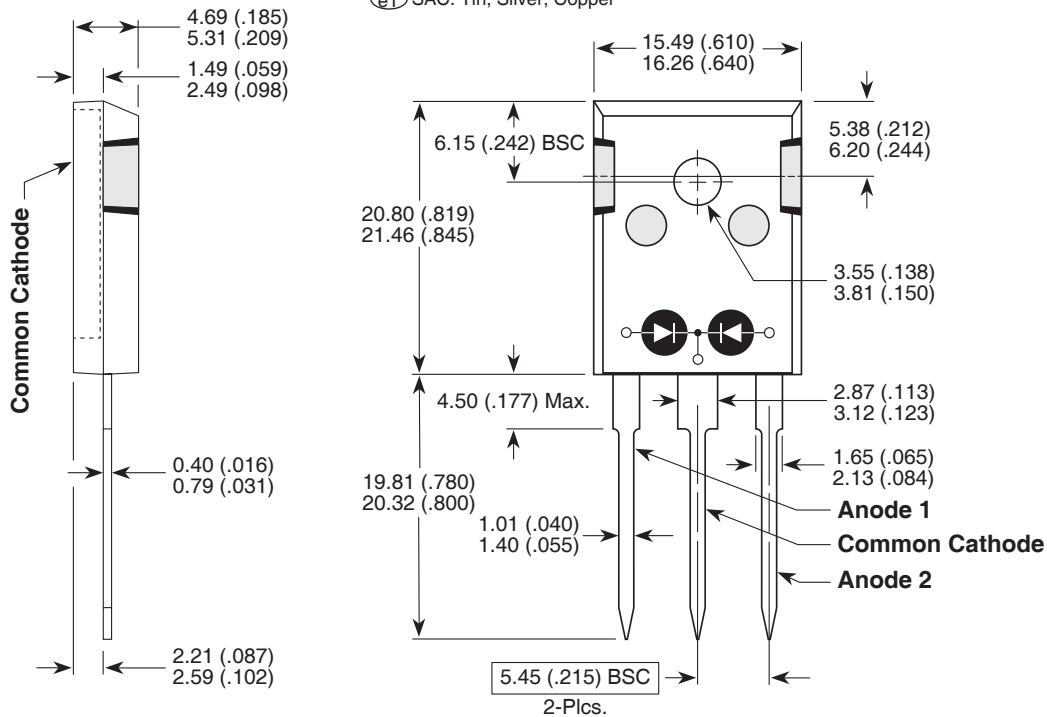
THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			.80	$^\circ C/W$
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)