

# DYNAMIC CHARACTERISTICS

APT8DQ60K(G)

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
$t_{rr}$	Reverse Recovery Time	$I_F = 1A$ , $di_F/dt = -100A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$	-	14		ns
$t_{rr}$	Reverse Recovery Time	$I_F = 8A$ , $di_F/dt = -200A/\mu s$ $V_R = 400V$ , $T_C = 25^\circ C$	-	19		
$Q_{rr}$	Reverse Recovery Charge		-	17		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	2	-	Amps
$t_{rr}$	Reverse Recovery Time	$I_F = 8A$ , $di_F/dt = -200A/\mu s$ $V_R = 400V$ , $T_C = 125^\circ C$	-	90		ns
$Q_{rr}$	Reverse Recovery Charge		-	160		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	3	-	Amps
$t_{rr}$	Reverse Recovery Time	$I_F = 8A$ , $di_F/dt = -1000A/\mu s$ $V_R = 400V$ , $T_C = 125^\circ C$	-	43		ns
$Q_{rr}$	Reverse Recovery Charge		-	250		nC
$I_{RRM}$	Maximum Reverse Recovery Current		-	11		Amps

# THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			2.7	$^\circ C/W$
$W_T$	Package Weight		0.07		oz
			1.9		g
Torque	Maximum Mounting Torque			10	lb•in
				1.1	N•m

Microsemi reserves the right to change, without notice, the specifications and information contained herein.

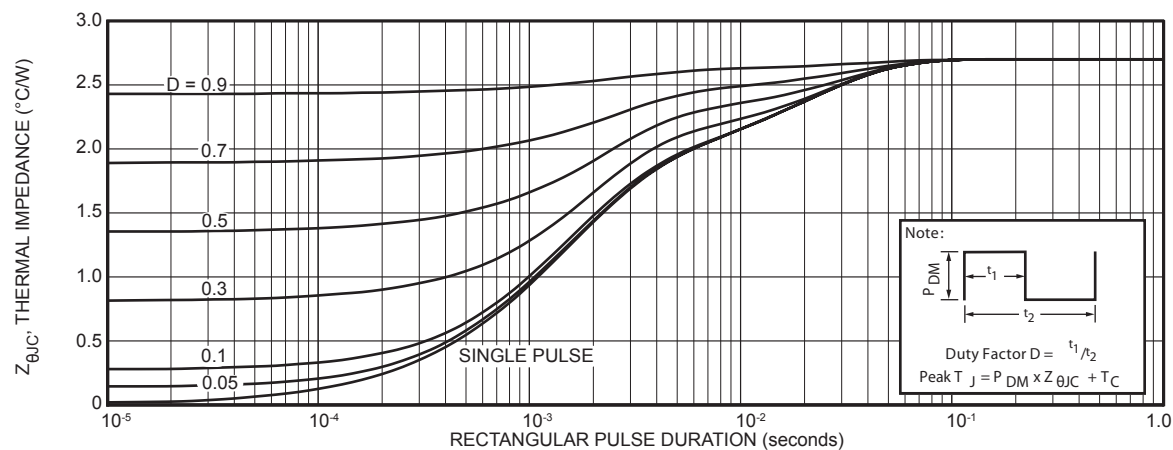


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION



# TYPICAL PERFORMANCE CURVES

APT8DQ60K(G)

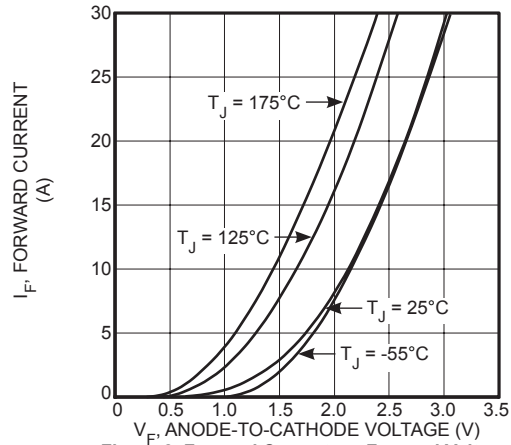


Figure 2. Forward Current vs. Forward Voltage

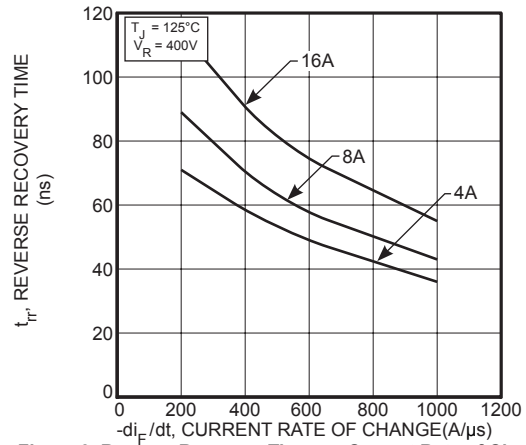


Figure 3. Reverse Recovery Time vs. Current Rate of Change

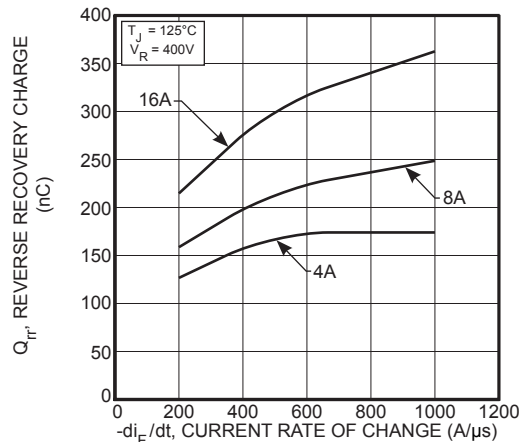


Figure 4. Reverse Recovery Charge vs. Current Rate of Change

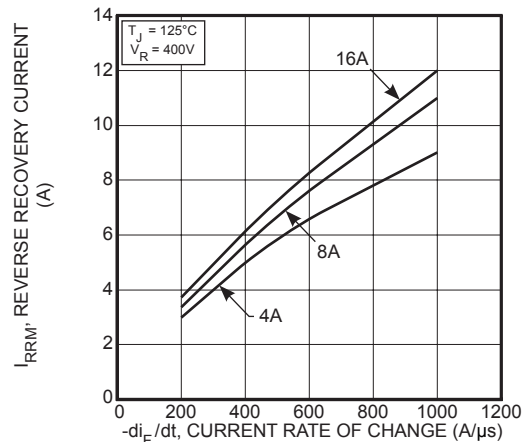


Figure 5. Reverse Recovery Current vs. Current Rate of Change

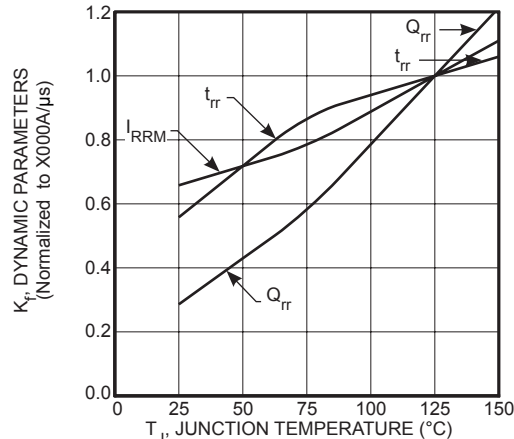


Figure 6. Dynamic Parameters vs. Junction Temperature

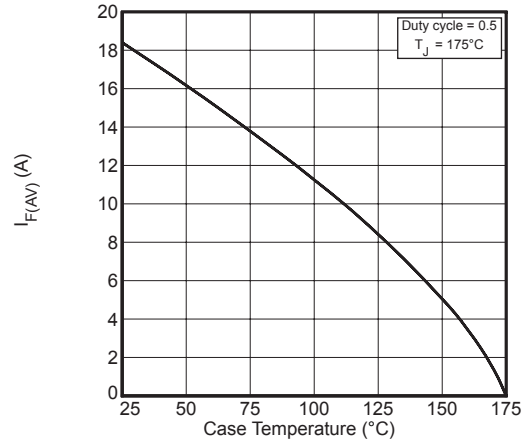


Figure 7. Maximum Average Forward Current vs. Case Temperature

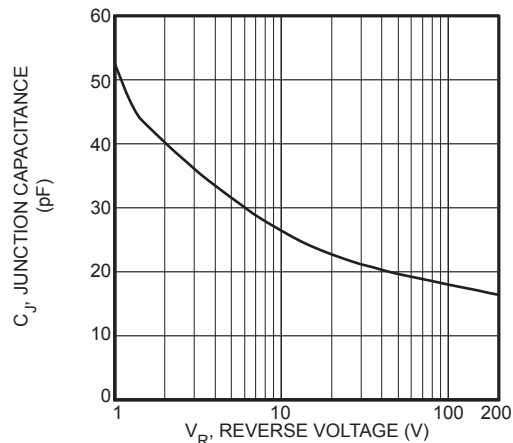


Figure 8. Junction Capacitance vs. Reverse Voltage



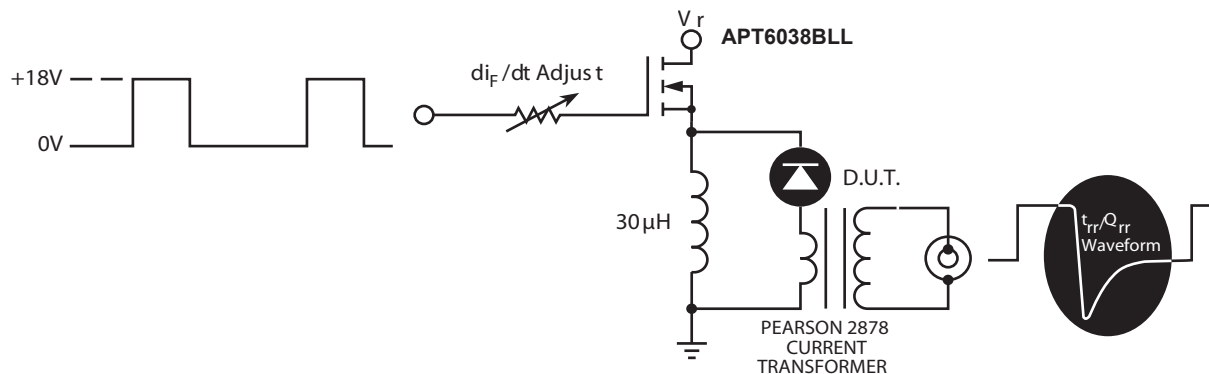


Figure 9. Diode Test Circuit

- 1  $I_F$  - Forward Conduction Current
- 2  $di_F/dt$  - Rate of Diode Current Change Through Zero Crossing.
- 3  $I_{RRM}$  - Maximum Reverse Recovery Current
- 4  $t_{rr}$  - Reverse Recovery Time measured from zero crossing where diode current goes from positive to negative, to the point at which the straight line through  $I_{RRM}$  and  $0.25 I_{RRM}$  passes through zero.
- 5  $Q_{rr}$  - Area Under the Curve Defined by  $I_{RRM}$  and  $t_{rr}$ .

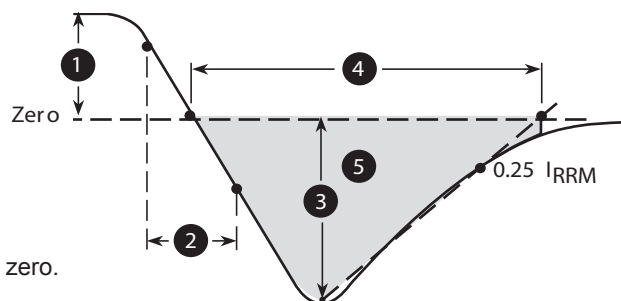
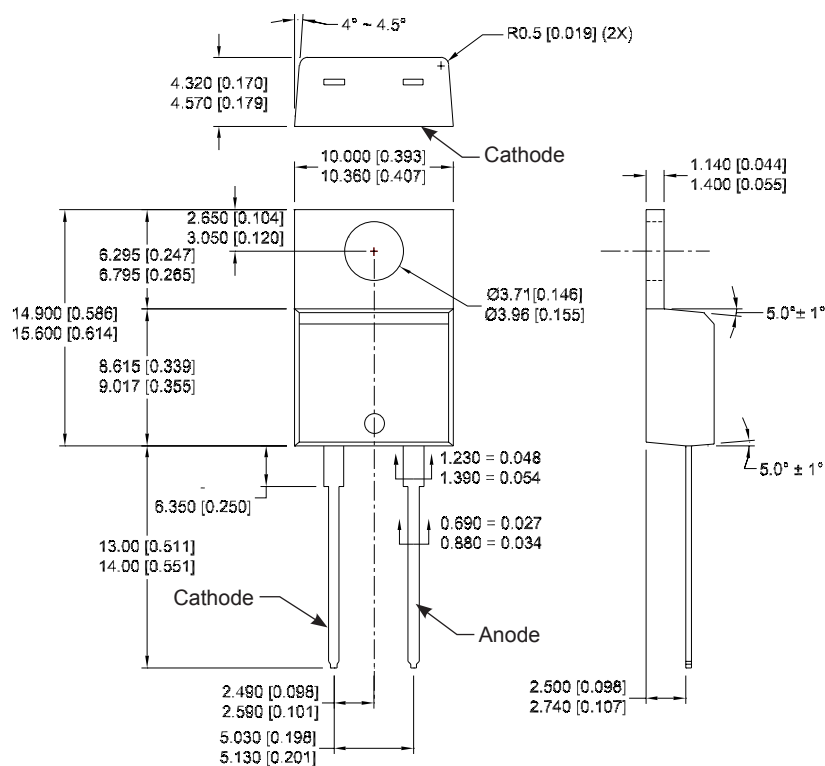


Figure 10. Diode Reverse Recovery Waveform Definition

## TO-220 (K) Package Outline

e3 100% Sn



Dimensions in millimeters and [inches]



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