

Pb Free Plating Product

F04H60S



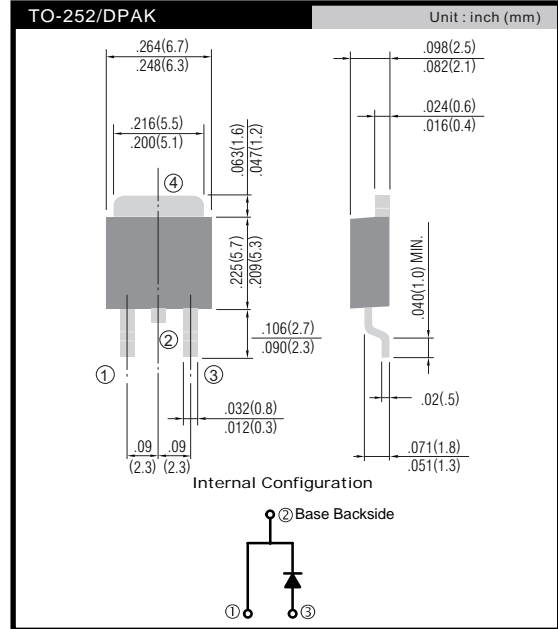
4Ampere,600Volt Single Surface Mount Type Hyperfast Recovery Epitaxial Diode

APPLICATION

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS

PRODUCT FEATURE

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



GENERAL DESCRIPTION

F04H60S using the latest FRED FAB process(planar passivation pellet) with ultrafast and soft recovery characteristics.

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
V_{RWM}	Working Peak Reverse Voltage	600	V
V_R	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 130^\circ\text{C}$	4	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	40	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	4.0	$^\circ\text{C/W}$

Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Units	
V_{FM1}	$I_F = 4\text{A}$	$T_C = 25^\circ\text{C}$	-	-	2.1	V
		$T_C = 125^\circ\text{C}$	-	-	1.7	
I_{RM1}	$V_R = 600\text{V}$	$T_C = 25^\circ\text{C}$	-	-	100	μA
		$T_C = 125^\circ\text{C}$	-	-	200	
t_{rr}	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$ $I_F = 4\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 390\text{V}$	$T_C = 25^\circ\text{C}$	-	19	-	ns
		$T_C = 25^\circ\text{C}$	-	25	60	
I_{rr} Q_{rr}	$I_F = 4\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 390\text{V}$	$T_C = 25^\circ\text{C}$	-	1.5	-	A
		$T_C = 25^\circ\text{C}$	-	18	-	nC
W_{AVL}	Avalanche Energy ($L = 40\text{mH}$)	4	-	-	mJ	

Notes:

1: Pulse: Test Pulse width = 300 μs , Duty Cycle = 2%

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

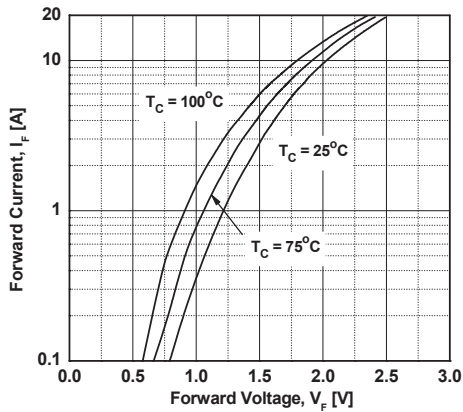


Figure 2. Typical Reverse Current vs. Reverse Voltage

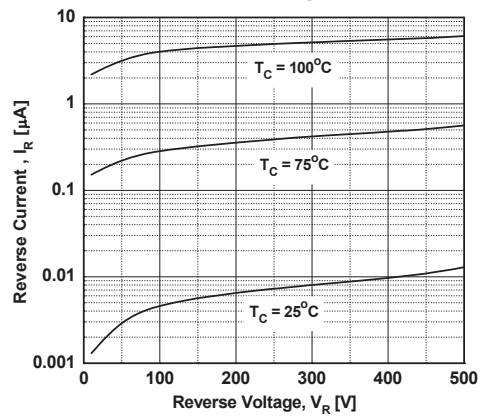


Figure 3. Typical Junction Capacitance

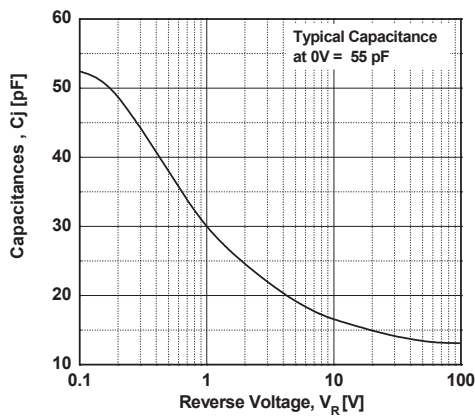


Figure 4. Typical Reverse Recovery Time vs. di/dt

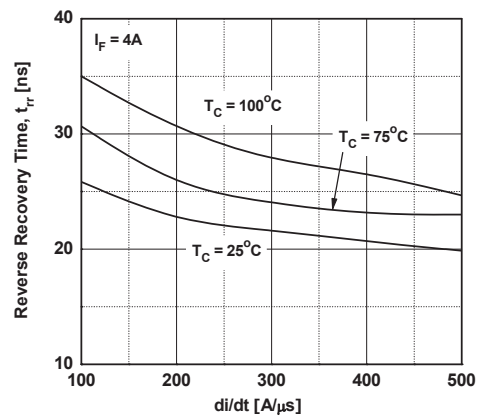


Figure 5. Typical Reverse Recovery Current vs. di/dt

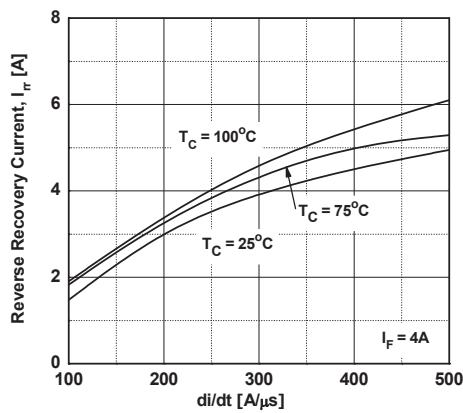
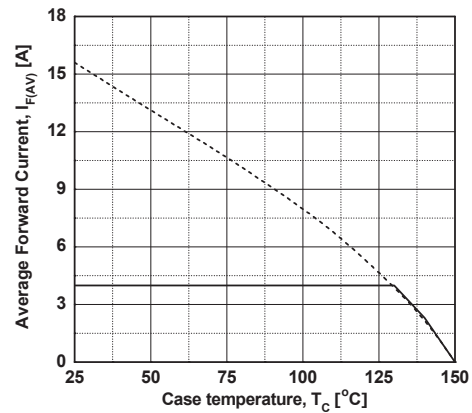


Figure 6. Forward Current Derating Curve



Test Circuit and Waveforms

