

Pb Free Plating Product

FFD04H60S



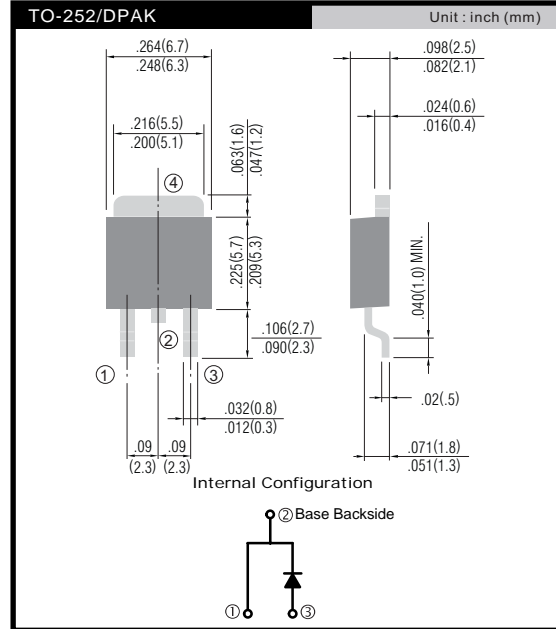
4Ampere,600Volt Single Surface Mount Type Hyperfast Recovery Epitaxial Diode

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

FFD04H60S 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

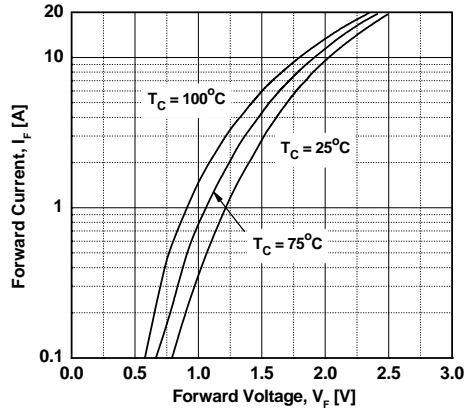


Figure 3. Typical Junction Capacitance

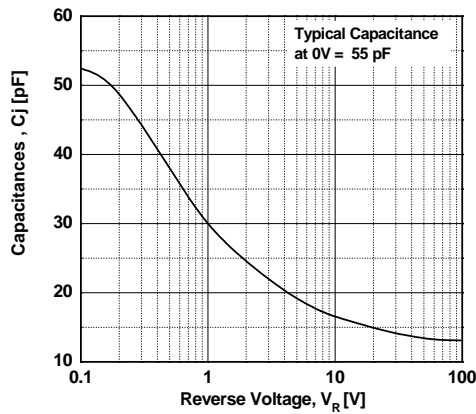


Figure 5. Typical Reverse Recovery Current vs. di/dt

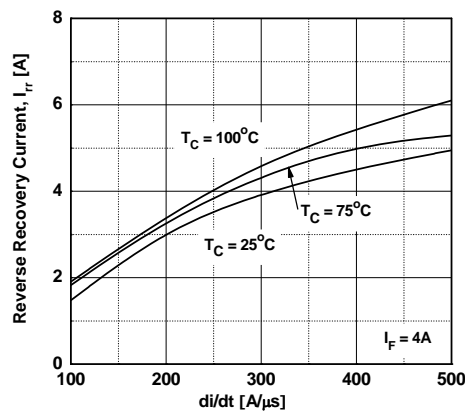


Figure 2. Typical Reverse Current vs. Reverse Voltage

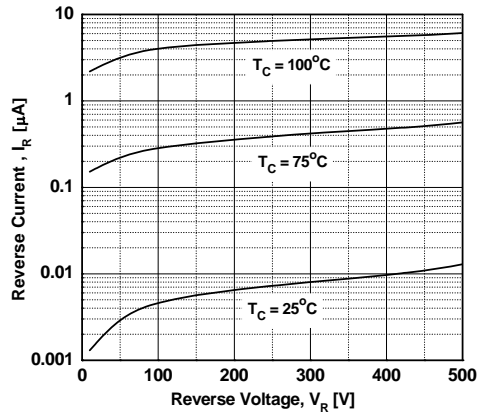


Figure 4. Typical Reverse Recovery Time vs. di/dt

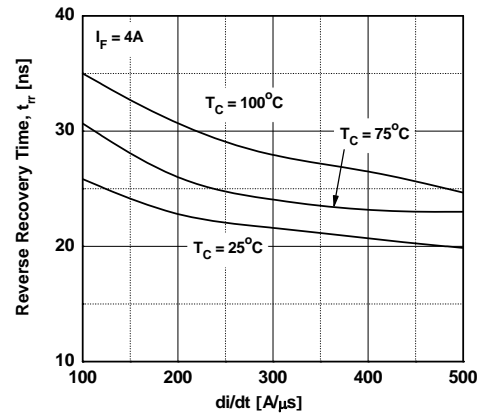
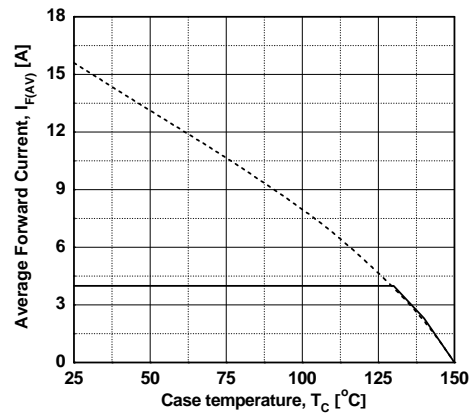


Figure 6. Forward Current Derating Curve



Test Circuit and Waveforms

