T-43-24

FA Series

Matched Pair and Quad Assemblies Diodes **PACKAGE All Devices DO-7**

MATCHING CHARACTERISTICS Apply over temperature range of −55°C to +100°C

Basic Diode (See Specification Below)	Forward Current Matching Range (Notes 4 & 6)	Reverse Current Match (ΔI_R Maximum) (Note 3)	Forward Voltage Match (ΔV_F Maximum)	Assembly Type Number	
				Pair	Quad
FD1389	10 μA to 1.0 mA		3.0 mV	FA2310U	FA4310U
FD1389	10 μA to 1.0 mA		10 mV	FA2311U	FA4311U
FD1389	1.0 mA to 10 mA		5.0 mV	FA2312U	FA4312U
FD1389	1.0 mA to 10 mA		15 mV	FA2313U	FA4313U
FD2389	10 μA to 1.0 mA		3.0 mV	FA2320U	FA4320U
FD2389	10 μA to 1.0 mA		10 mV	FA2321U	FA4321U
FD2389	1.0 mA to 10 mA		5.0 mV	FA2322U	FA4322U
FD2389	1.0 mA to 10 mA		15 mV	FA2323U	FA4323U
FD2389	10 mA to 100 mA		10 mV	FA2324U	FA4324U
FD2389	10 mA to 100 mA		20 mV	FA2325U	FA4325U
FD3389	10 μA to 1.0 mA	(2.0 + 0.064 V_R) nA	10 mV	FA2330U	FA4330U
FD3389	1.0 mA to 10 mA	(2.0 + 0.064 V_R) nA	15 mV	FA2331U	FA4331U
FD3389	10 mA to 100 mA	(2.0 + 0.064 V_R) nA	20 mV	FA2332U	FA4332U
FD3389	10 μA to 1.0 mA	(4.0 + 0.128 V_R) nA	10 mV	FA2333U	FA4333U
FD3389	1.0 mA to 10 mA	(4.0 + 0.128 V_R) nA	15 mV	FA3334U	FA4334U
FD3389	10 mA to 100 mA	(4.0 + 0.128 V_R) nA	20 mV	FA2335U	FA4335U
FD6389	10 mA to 100 mA		10 mV	FA2360U	FA4360U
FD6389	10 mA to 100 mA		20 mV	FA2361U	FA4361U

BASIC DIODE ELECTRICAL CHARACTERISTICS 25°C Ambient Temperature unless otherwise noted

Symbol	Parameter	Test Conditions	FD1389		FD2389		FD3389		FD6389		Units
			Min	Max	Min	Max	Min	Max	Min	Max	
V_{RRM}	Breakdown Voltage	I_R = 5.0 μA	100								V
		I_R = 100 μA			200		150		75		V
1_R	Reverse Current	V_R = WIV		100		100		1.0		100	nA
		V_R = WIV, T_A = 150°C		100		100		3.0		100	μA
V_F	Forward Voltage	I_F = 200 mA				1.000		1.000		1.000	V
		I_F = 100 mA				0.925		0.930		0.920	V
		I_F = 50 mA				0.860		0.880		0.880	V
		I_F = 20 mA		1.000		0.790		0.840		0.790	V
		I_F = 10 mA		0.875		0.740		0.810		0.750	V
		I_F = 5.0 mA		0.800		0.700		0.770		0.710	V
		I_F = 2.0 mA		0.725		0.620		0.730		0.670	V
		I_F = 1.0 mA		0.670		0.610		0.710		0.630	V
C	Capacitance (Note 5)	V_R = 0, f = 1 MHz		2.0		5.0		6.0		3.0	pF
t_{rr}	Reverse Recovery Time	I_F = I_R = 10 mA Recover to 1.0 mA		4.0							ns
		I_F = I_R = 30 mA Recover to 1.0 mA				50					ns
		I_F = I_R = 200 mA Recover to 20 mA								4.0	ns

Note 1: These are Limiting values above which life or satisfactory performance may be impaired.

Note 2: These are steady state Limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.

Note 3: The Reverse Current Match (ΔI_R) is the difference in reverse current between the diode having the highest I_R and that having the lowest I_R in a given assembly. The reverse voltage (V_R) in the ΔI_R calculation can be any value up to 125V. For example, the maximum ΔI_R for an FA2330U at V_R of IO V is (2.0 + 0.064 × 10) nA or 2.64 nA.

Note 4: The Forward Current Matching Ranges between 10 μA and 10 mA may be applied either as a dc current or a pulse current. Above 10 mA, however, the matching characteristics are guaranteed only for low duty cycle (≤1%) pulse current. Conditions of test are shown in the characteristic curve and test circuit section of this book.

Note 5: For product family characteristics curves for the basic diodes used in the assemblies, refer to the following:
FD1389 D4, FD2389 D1, FD3389 D2 and FD6389 D4.