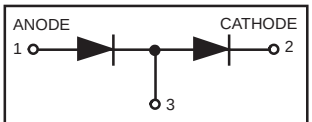
Dual Serise
Switching Diodes

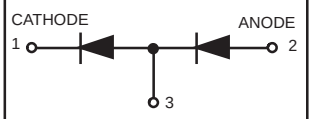


FDS99U
SOT-323 (SC-70)

FDS99RU
SOT-323 (SC-70)



CATHODE/ANODE
FDS99U



CATHODE/ANODE
FDS99RU

Features

- We declare that the material of product compliance with RoHS requirements.

The FDS99U is a smaller package, equivalent to the FDS99S

Suggested Applications

- ESD Protection
- Polarity Reversal Protection
- Data Line Protection
- Inductive Load Protection
- Steering Logic

ORDERING INFORMATION

Device	Package	Shipping
FDS99U	SOT–323(SC–70)	3000/Tape & Reel
FDS99RU	SOT–323(SC–70)	3000/Tape & Reel
FDS99U3	SOT–323(SC–70)	10000/Tape & Reel
FDS99RU3	SOT–323(SC–70)	10000/Tape & Reel

DEVICE MARKING

FDS99U = A7; FDS99RU = F7

MAXIMUM RATINGS (Each Diode)

Rating	Symbol	Value	Unit
Reverse Voltag	V_R	70	Vdc
Forward Current	I_F	215	mAdc
Peak Forward Surge Current	$I_{FM(surge)}$	500	mAdc
Repetitive Peak Reverse Voltage	V_{RRM}	70	V
Average Rectified Forward Current (Note 1.) (averaged over any 20 ms period)	$I_{F(AV)}$	715	mA
Repetitive Peak Forward Current	I_{FRM}	450	mA
Non–Repetitive Peak Forward Current	I_{FSM}		A
t = 1.0 μs		2.0	
t = 1.0 ms		1.0	
t = 1.0 S		0.5	

1. FR–5 = 1.0 × 0.75 × 0.062 in.

THERMAL CHARACTERISTICS

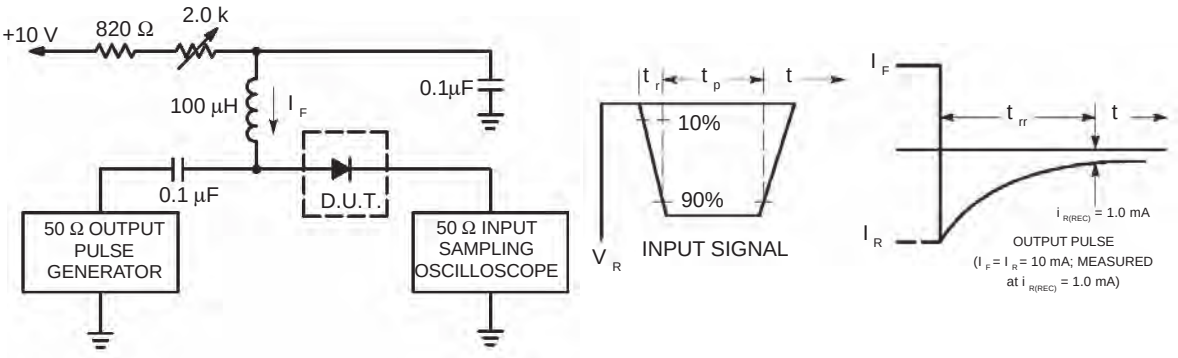
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board, (Note 1.) T_A = 25°C Derate above 25°C	P_D	200 1.6	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	625	°C/W
Total Device Dissipation Alumina Substrate, (Note 2.) T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J,T_{stg}	–65 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Each Diode)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Reverse Breakdown Voltage	($I_{(BR)}$ = 100 μA)	$V_{(BR)}$	70	—	Vdc
Reverse Voltage Leakage Current	(V_R = 70 Vdc)	I_R	—	2.5	μAdc
	(V_R = 25 Vdc, T_J = 150°C)		—	30	
	(V_R = 70 Vdc, T_J = 150°C)		—	50	
Diode Capacitance (V_R = 0, f = 1.0 MHz)		C_D	—	1.5	pF
Forward Voltage	(I_F = 1.0 mAdc)	V_F	—	715	mVdc
	(I_F = 10 mAdc)		—	855	
	(I_F = 50 mAdc)		—	1000	
	(I_F = 150 mAdc)		—	1250	
Reverse Recovery Time (I_F=I_R=10 mAdc, $i_{R(REC)}$=1.0mAdc) (Figure 1)	R_L = 100 Ω	t_{rr}	—	6.0	ns
Forward Recovery Voltage (I_F = 10 mA, t_r = 20 ns)		V_{FR}	—	1.75	V

1. FR–5 = 1.0 × 0.75 × 0.062 in.

2. Alumina = 0.4 × 0.3 × 0.024 in. 99.5% alumina.



Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10mA.

2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10mA.

3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

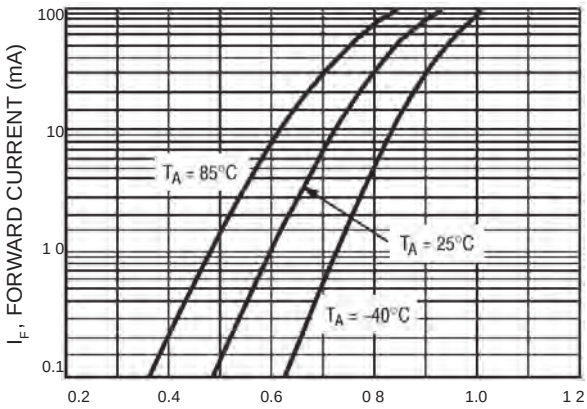


Figure 2. Forward Voltage

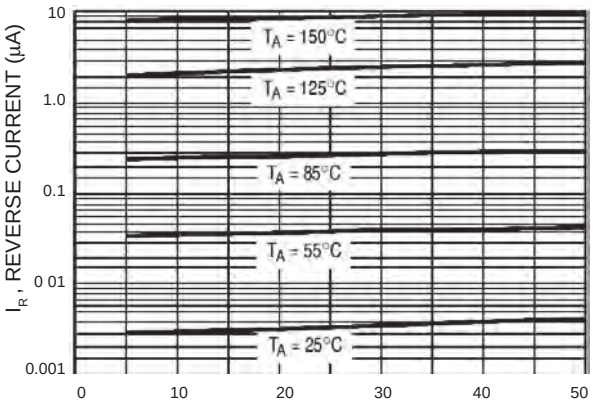


Figure 3. Leakage Current

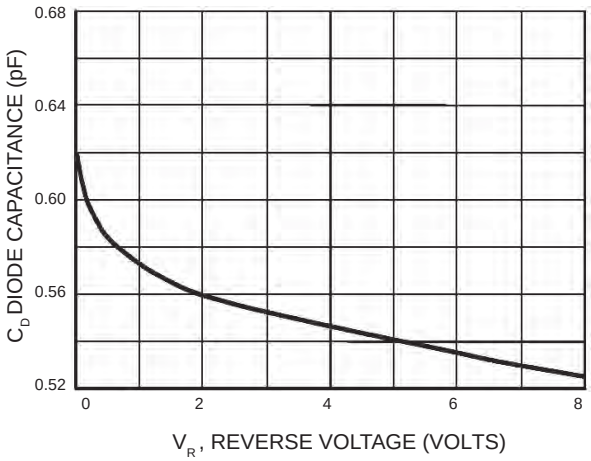
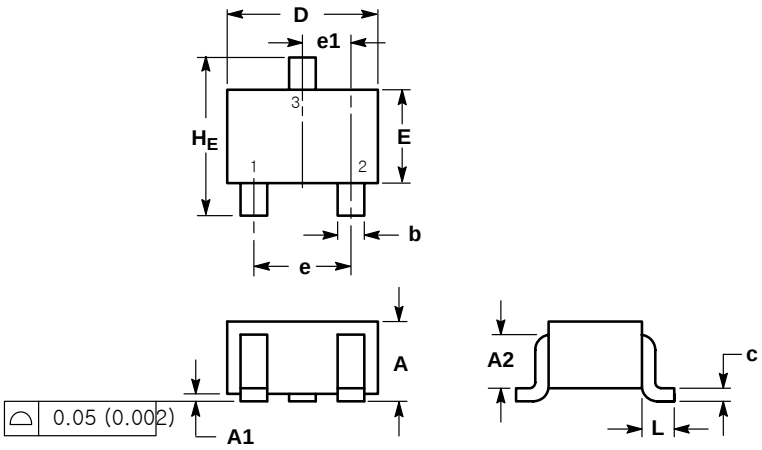


Figure 4. Capacitance

SC−70 (SOT−323)



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0 032	0.035	0 040
A1	0.00	0.05	0.10	0 000	0.002	0 004
A2		0.7 REF			0.028 REF	
b	0.30	0.35	0.40	0 012	0.014	0 016
c	0.10	0.18	0.25	0 004	0.007	0 010
D	1.80	2.10	2.20	0 071	0.083	0 087
E	1.15	1.24	1.35	0 045	0.049	0 053
e	1.20	1.30	1.40	0 047	0.051	0 055
e1		0.65 BSC			0.026 BSC	
L		0.425 REF			0.017 REF	
H_E	2.00	2.10	2.40	0 079	0.083	0 095

SOLDERING FOOTPRINT*

