INTERNATIONAL SEMICONDUCTOR, INC.

FORWARD REGULATOR (Multi-Pellet) DIODES

1N4156

and OTHER FORWARD REGULATOR DIODES

ELECTRICAL CHARACTERISTICS @ 25 °C, unless otherwise stated

ISI Part Number	Forward Voltage	Minimum Breakdown Voltage at 5.0 uA	Maximum Reverse Current			Maximum Capacitance* at 0 Volts & f=1 MHz	Stored Charge	
			at 25 °C	at 150 °C	at V_{BR}		Min	Max
	V_F (Volts)	V_{BR} (Volts)	I_R (nA)	I_R (uA)	(Volts)	C (pF)	Q (pC)	Q (pC)
1N912	Table 10	10	1.0		5.0			
1N912A	Table 11	10	1.0		5.0			
1N913	Table 10	10	1.0		5.0			
1N913A	Table 11	10	1.0	50	5.0			
1N4156	Table 1	30	50	50	20	25	50	500
1N4157	Table 2	30	50	50	20	20	50	500
1N4453	Table 3	30	50	50	20	30	50	500
1N5179	Table 4	30	50	25 at 100 °C	20	20	50	500
1N4819	Table 5	30 at 100 uA	100	25 at 100 °C	20	25	-	-
1N4829	Table 5	30 at 100 uA	100	25 at 100 °C	20	20	-	-
1N4830	Table 6	30 at 100 uA	100		20	25	-	-
C6042	Table 7	30	30		20	15 (typ.)	75	400
C6043	Table 9	30	30		20	10 (typ.)	75	400
C6044	Table 9	30	30		20	7 (typ.)	60	300
C6342	Table 7	30	30		30	15 (typ.)	75	400
C6343	Table 8	60	30		30	10 (typ.)	75	400
C6344	Table 9	90	30		30	7 (typ.)	60	300
MPD200	Table 7	30	30		20	20	75	400
MPD300	Table 8	60	30		20	15	75	400
MPD400	Table 9	90	30		20	10	60	300

Forward Voltage, V_F, Volts

I_F mA	Table 1 Min-Max	Table 2 Min-Max	Table 3 Min-Max	Table 4 Min-Max	Table 5 Min-Max	Table 6 Min-Max
0.010	0.74-1.09	1.19-1.54	.430-.550	1.40-2.10		
0.100	0.97-1.22	1.52-1.77	.510-.630	1.80-2.50	0.84-1.25	1.35-1.80
1.00	1.21-1.41	1.85-2.05	.600-.710	2.20-2.80	0.99-1.44	1.63-2.08
10	1.38-1.59	2.12-2.32	.690-.800	2.60-3.20	1.16-1.61	1.90-2.35
100**	1.54-1.84	2.36-2.66	.800-.920	3.00-3.70	1.35-1.87	2.15-2.69

I_F mA	Table 7 Min-Max	Table 8 Min-Max	Table 9 Min-Max	Table 10 Min-Max	Table 11 Min-Max
0.010	0.90-1.00	1.40-1.54	1.82-2.01		
0.100	1.05-1.16	1.62-1.78	2.14-2.36		
1.00	1.22-1.34	1.84-2.03	2.47-2.71	.558-.686	.589-.651
10	1.39-1.54	2.10-2.33	2.80-3.07		
100**	1.60-1.76	2.40-2.65	3.16-3.49	-1.0	-1.0

* Capacitance as measured on Boonton 75A Capacitance Bridge at a signal level of 50 mA and a freque

** Pulsed Measurement. Pulse width = 300 nsec, Duty Cycle 2%.

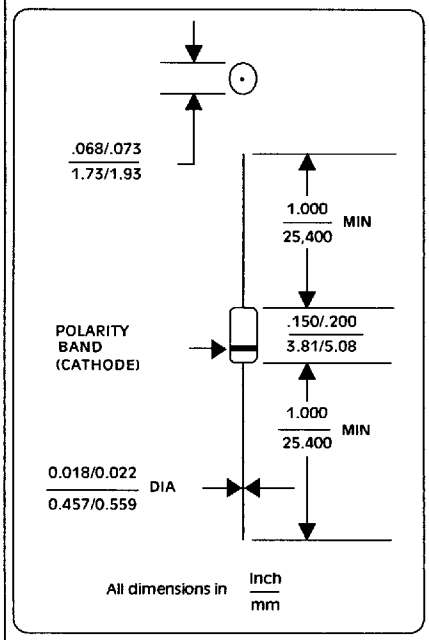

FIGURE 1

DESIGN DATA

CASE: Hermetically sealed glass case. DO-35 Outline.

LEAD MATERIAL: Copper clad steel.

LEAD FINISH: Tin/Lead

POLARITY: Diode to be operated with the banded (cathode) end positive with respect to the opposite end.

WEIGHT: 0.2 Grams

MOUNTING POSITION: Any

These high speed multi-pellet diodes are used in computer circuits and general purpose applications. They consist of one, two, three, or four silicon diode chips in series, mounted in a DO-35 hermetically seales glass package. This structure makes possible devices having controlled conductance and low leakage. This controlled conductance is necessary for the design of clippers, dc coupling circuits, clamping circuits, meter protectors, bias regulators, and other types of circuits that require tight tolerance on low voltage levels.

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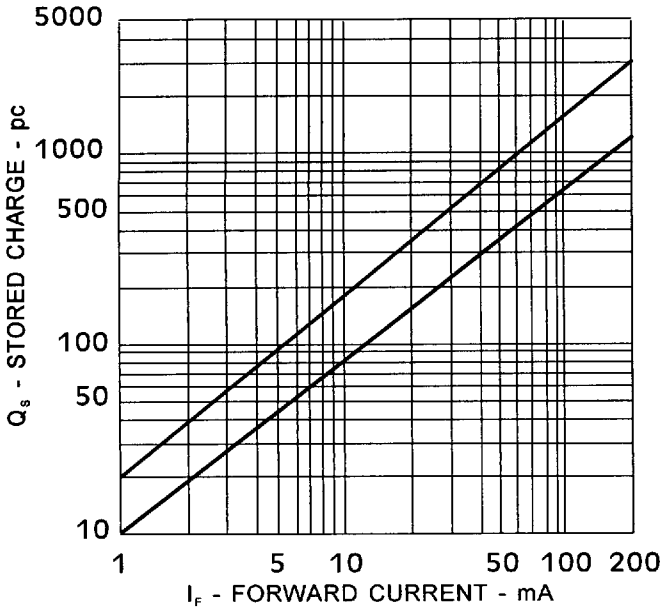
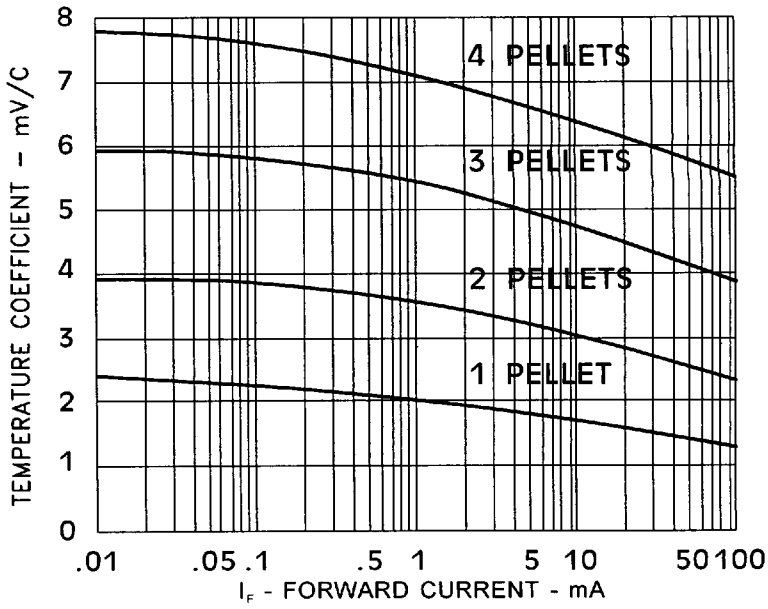


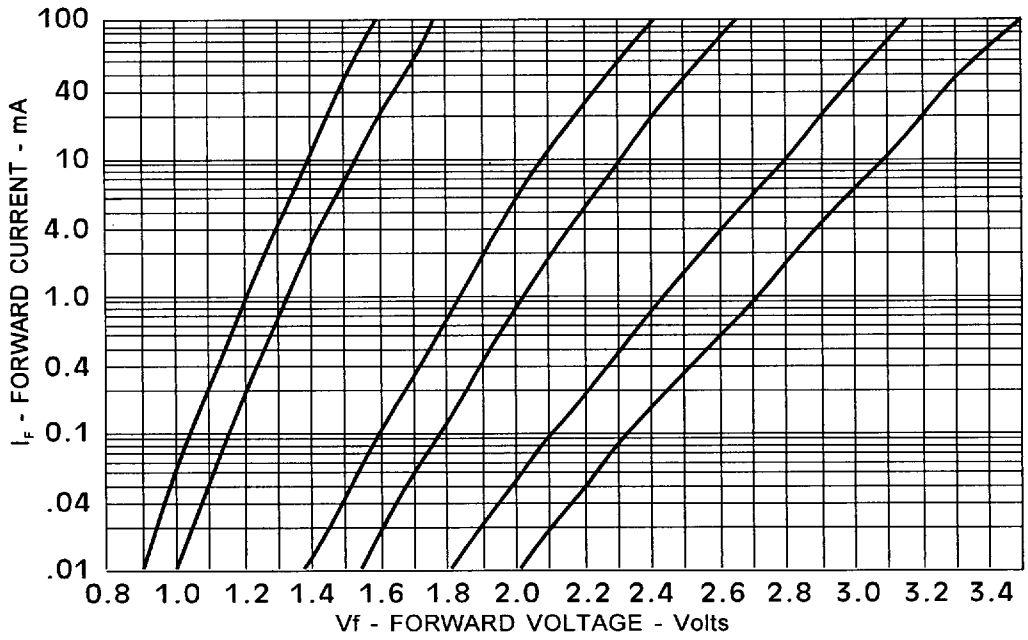
STORED CHARGE VS FORWARD CURRENT

Figure 1



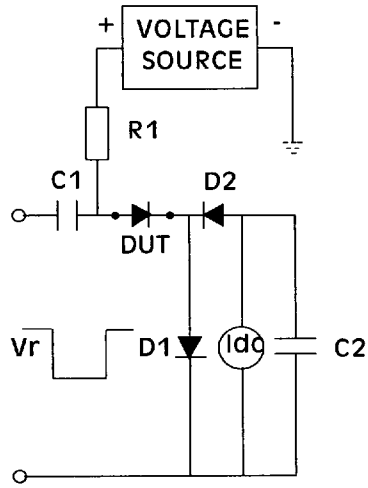
TEMPERATURE COEFFICIENT VS FORWARD CURRENT

Figure 2



FORWARD VOLTAGE CHARACTERISTICS AT Ta = 25 C

Figure 3



NOTES:

(1) For typical temperature coefficients see Figure 2

(2) Stored Charge is measured in the circuit given in MIL-STD-750, 19 January 1962, Method 4061. In this circuit (See Figure 4) D1 should be an ultra fast recovery diode having a stored charge less than 5% of that for the diode under test, with breakdown voltage greater than V_R, the turn-off pulse voltage. D2 should be a high speed planar epitaxial diode (1N4150) with rapid turn on time. The pulse used for measuring stored charge should have VR equal to 10 volts, a rise time <0.5 nanoseconds, a repetion rate of 100 kHz, and a width greater than 10 nanoseconds.

The stored charge is first measured with no current (I1 in Method 4061) and than with I_R = 1.0 mA (I2 in Method 4061). The stored charge specified is the difference between these two readings.

(3) The Tektronix diode recovery time plug-in unit, Type S, can be used for approximate stored charge measurements. The stored charge reading in the Type S, under the conditions of I_F = 1.0 mA, I_R = 2.0 mA, measuring to V_R = 0 volts, will be up to a factor of 2 lower than the stored charge measured in accordance with Method 4061, because of the lower rate of charge withdrawl using the Type S.