Siliconix incorporated

J553 SERIES

Current Regulator Diodes T-11-27

The J553 Series is a low cost family of current regulators designed for demanding applications in test equipment and instrumentation. These devices utilize the proven JFET techniques to produce a single two-leaded device which is extremely simple to operate. With nominal current ranges from 0.5 mA to 4.5 mA, the J553 Series will meet a wide array of design requirements. In addition to its two-lead construction, this series feature improved current control over wide temperature ranges and simple "floating" operation as no power supplies are required for biasing. Several of the devices provide effective current control operating down to even 2 volts. Finally, its low-cost TO-92 package ensures a cost effective design solution.

For additional design information please see performance curves NCL, which are located in Section 7.

PART	I_F (mA)
J553	0.50
J554	1.00
J555	2.00
J556	3.00
J557	4.50

TO-92 **BOTTOM VIEW**

1 ANODE
2 CATHODE

SIMILAR PRODUCTS

- TO-18, See CR022 Series
- Chips, Order J5XXCHP

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)

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PARAMETERS/TEST CONDITIONS	SYMBOL	LIMIT	UNITS
Peak Operating Voltage	P_{OV}	50	V
Forward Current	I_F	20	mA
Reverse Current	I_R	50	
Power Dissipation	P_D	360	mW
Power Derating		3.27	mW/°C
Operating Junction Temperature	T_J	-55 to 150	°C
Storage Temperature	T_{stg}	-55 to 200	

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

SYMBOL	I_F			Z_d	Z_k	V_L		POV		C_F	θ_1
PARAMETER	REGULATOR CURRENT			DYNAMIC IMPEDANCE	KNEE IMPEDANCE	LIMITING VOLTAGE		PEAK OPERATING VOLTAGE		CAPACITANCE	TEMPERATURE COEFFICIENT (TYPICALS)
TEST CONDITIONS	V_F = 25 V (Note 1)			V_F = 25 V (Note 2)	V_F = 6 V	$I_F = 0.8\ I_{F(MIN)}$ (Note 3)		$I_F = 1.1\ I_{F(MAX)}$ (Note 4)		V_F = 25 V f = 1 MHz	V_F = 25 V 0°C ≤ T_A ≤ 100°C
UNITS	mA			MΩ	MΩ	V		V		pF	ppm/°C
	NOM	MIN	MAX	TYP	TYP	MAX	TYP	MIN	TYP	TYP	TYP
J553	0.50	0.180	0.750	13.0	1.00	1.30	0.7	50	100	2.2	-200
J554	1.00	0.600	1.600	5.0	0.40	1.75	0.9	50	100	2.2	-1300
J555	2.00	1.400	2.600	1.8	0.17	2.15	1.4	50	100	2.2	-2300
J556	3.00	2.400	3.800	1.0	0.09	2.60	1.7	50	100	2.2	-2800
J557	4.50	3.600	5.300	0.6	0.06	3.00	2.1	50	100	2.2	-3100

NOTES: 1. Pulse test – steady state currents may very.
2. Pulse test – steady state impedances may vary.
3. Min V_F required to insure $I_F > 0.8\ I_{F(MIN)}$.
4. MaxV_F where $I_F > 1.1\ I_{F(MAX)}$ is guaranteed.