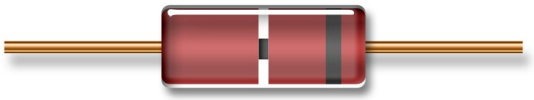
1N5283-1 thru 1N5314-1 & 1N7048-1 thru 1N7055-1

0.5 W Current Regulators

Rev. V4

Features

- High Source Impedance
- Internal Metallurgical Bond
- Double Plug Construction
- Regulates Current over Broad Voltage Range
- JAN, JANTX, JANTXV and JANS Qualified per MIL-PRF-19500/463
- Hermetically Sealed Glass, DO-7
- Flexible Axial-lead Mounting Terminals
- Non sensitive to ESD



Description

The popular 1N5283-1 thru 1N5314-1 and 1N7048-1 thru 1N7055-1 series of 0.5 watt current regulators provides a selection from 0.22 mA to 10 mA in standard 10% tolerances. These devices regulate current over a broad voltage range as a counter part offering to Zeners that regulate voltage over a broad current range. The somewhat larger D0-7 packaging option offers a double-plug internal bond connection with a larger active die element for its unique function as a current limiter.

Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Steady State Power Dissipation (T_L = +50°C, L = 3/8[3])	500 mW
Working Peak Voltage	100 V
Thermal Impedance	25°C/W
Thermal Resistance (junction to lead @ L = 0.375 in.)	250°C/W
Junction & Storage Temperature	-65°C to +175°C
Solder Pad Temperature @ 10 s	+260°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. VPT Components does not recommend sustained operation near these survivability limits.
3. Derate @ 4 mW/°C above +50°C.

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

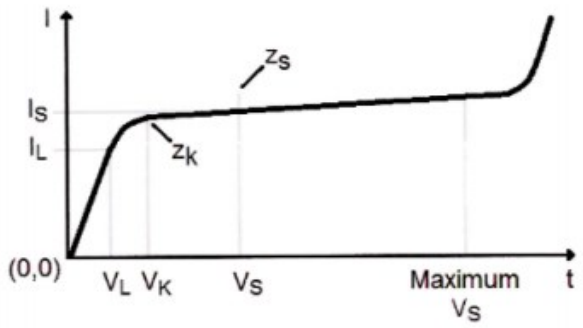
Electrical Specifications: T_A = +25°C (unless otherwise specified)

Part #	Regulator Current [4] I_P (mA) @ V_S = 25 V			Regulator Impedance[5] @ V_S = 25 V Z_S (M)	Knee Impedance[6] @ V_K = 6 V Z_K (MΩ)	Limiting Voltage @ I_L = 0.8 I_P V_L (V)	Peak Operating Voltage (V_{POV})
	Nom.	Min.	Max.	Min.	Min.	Max.	
1N5283-1	0.22	0.198	0.242	25	2.75		
1N5284-1	0.24	0.216	0.264	19	2.35		
1N5285-1	0.27	0.243	0.297	14	1.95	1.00	100
1N5286-1	0.30	0.270	0.330	9	1.60		
1N5287-1	0.33	0.297	0.363	8	1.35		
1N5288-1	0.39	0.351	0.429	4.10	1.000	1.05	
1N5289-1	0.43	0.387	0.473	3.30	0.870	1.05	
1N5290-1	0.47	0.423	0.517	2.70	0.750	1.05	100
1N5291-1	0.56	0.504	0.616	1.90	0.560	1.10	
1N5292-1	0.62	0.558	0.682	1.55	0.470	1.13	
1N5293-1	0.68	0.612	0.748	1.35	0.400	1.15	
1N5294-1	0.75	0.675	0.825	1.15	0.335	1.20	
1N5295-1	0.82	0.738	0.902	1.00	0.290	1.25	100
1N5296-1	0.91	0.819	1.001	0.88	0.240	1.29	
1N5297-1	1.00	0.900	1.100	0.80	0.205	1.35	
1N5298-1	1.10	0.99	1.21	0.70	0.180	1.40	
1N5299-1	1.20	1.08	1.32	0.64	0.155	1.45	
1N5300-1	1.30	1.17	1.43	0.58	0.135	1.50	100
1N5301-1	1.40	1.26	1.54	0.54	0.115	1.55	
1N5302-1	1.50	1.35	1.65	0.51	0.105	1.60	
1N5303-1	1.60	1.44	1.76	0.475	0.092	1.65	
1N5304-1	1.80	1.62	1.98	0.420	0.074	1.75	
1N5305-1	2.00	1.80	2.20	0.395	0.061	1.85	100
1N5306-1	2.20	1.98	2.42	0.370	0.052	1.95	
1N5307-1	2.40	2.16	2.54	0.345	0.044	2.00	
1N5308-1	2.70	2.43	2.97	0.320	0.035	2.15	
1N5309-1	3.00	2.70	3.30	0.300	0.029	2.25	
1N5310-1	3.30	2.97	3.63	0.280	0.024	2.35	100
1N5311-1	3.60	3.24	3.96	0.265	0.020	2.50	
1N5312-1	3.90	3.51	4.29	0.255	0.017	2.60	
1N5313-1	4.30	3.87	4.73	0.245	0.014	2.75	100
1N5314-1	4.70	4.23	5.17	0.235	0.012	2.90	
1N7048-1	5.10	4.59	5.61	0.100	.004	3.67	80
1N7049-1	5.60	5.04	6.16	0.090	.004	4.03	80
1N7050-1	6.20	5.58	6.82	0.080	.003	4.46	70
1N7051-1	6.80	6.12	7.48	0.070	.002	4.90	70
1N7052-1	7.50	6.75	8.25	0.050	.0015	5.40	60
1N7053-1	8.20	7.38	9.02	0.030	.0015	5.90	60
1N7054-1	9.10	8.19	10.01	0.020	.001	6.55	50
1N7055-1	10.00	9.00	11.10	0.010	.001	7.20	50

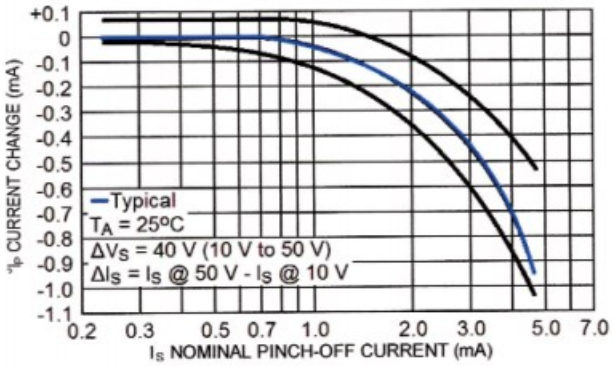
4. t = 90s or thermal equilibrium for 1N5283 through 1N5314. t = pulse measurement, 10 ms max for 1N7048 through 1N7055
5. Z_S is derived by superimposing a 90 Hz RMS signal equal to 10% of V_S on V_S.
6. Z_K is derived by superimposing a 90 HZ RMS signal equal to 10% of V_K on V_K.

Typical Performance Curves

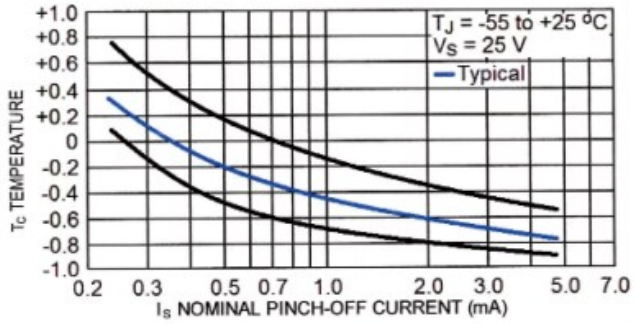
Current Regulator Characteristics



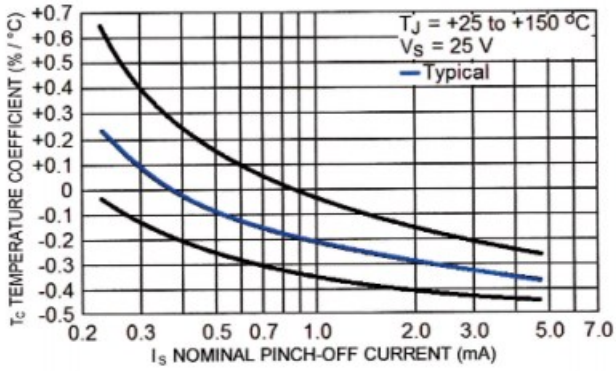
Current Regulator Factor



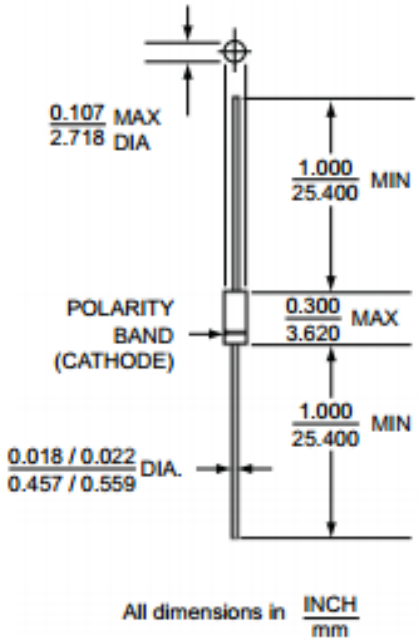
Temperature Coefficient



Output Return Loss



Hermetically Sealed Glass, DO-7



Lead Material: copper clad steel
Lead Finish: tin/lead
Marking: part number and cathode band
Weight: 0.2 grams
Polarity: diode to be operated with the cathode band end negative
Mounting Position: any