

# 1PMT5283 thru 1PMT5314

## CURRENT REGULATOR DIODES



**D0-216**

### FEATURES:

- Surface-mount equivalent to 1N5283 thru 1N5314 series
- Popular Microsemi Powermite® surface-mount package
- Nominal current regulation from 0.22 and 4.70 mA
- Broad operating voltage
- Constructed with an Oxide Passivated All Diffused Die
- Full metallic bottom eliminates flux entrapment
- Integral Heat Sink Locking Tabs for excellent thermal dissipation and improved current regulation

### MAXIMUM RATINGS:

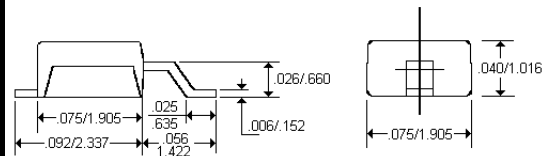
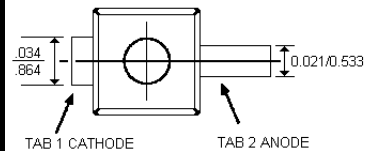
- Operating and Storage Temperature: -55°C to +150°C
- DC Power Dissipation: 600mW @  $T_L = 135^\circ\text{C}$
- Power Derating: 40mW/°C @  $T_L > 135^\circ\text{C}$
- Peak operating voltage: 100 Volts

### MECHANICAL CHARACTERISTICS

- Terminals: Leads tin plated
- Thermal resistance: 30°C/W junction to Tab 1
- Polarity: Cathode indicated by a band
- Packaging: Tape and Reel (EIA Standard RS-481)
- Weight 0.016 gram
- Mounting position any way

### PACKAGING

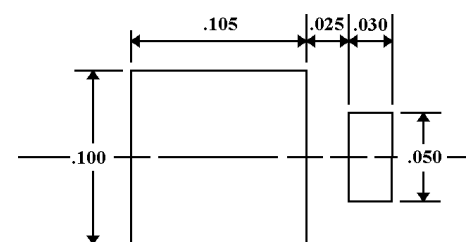
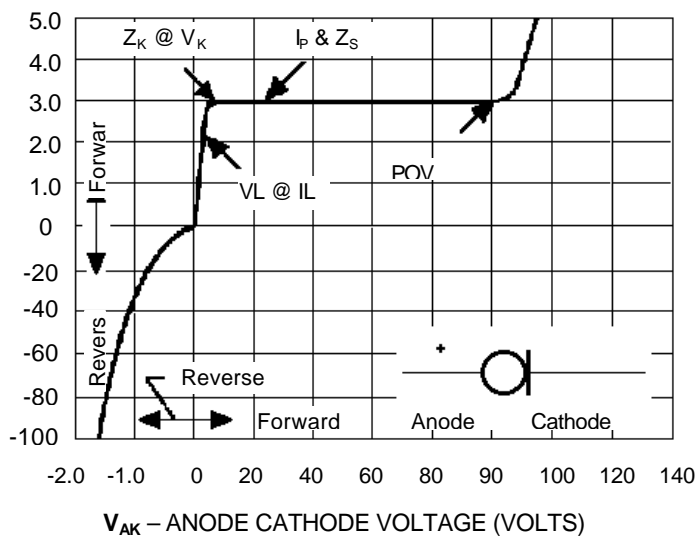
- Tape and Reel Standard 481
- 7 inch Reel 3,000 Pieces
- 13 inch Reel 12,000 Pieces



INCHES/MM

All dimensions +/- .005 inches/0.127mm

TYPICAL CURRENT REGULATOR CHARACTERISTICS



Mounting Pad Dimensions in Inches

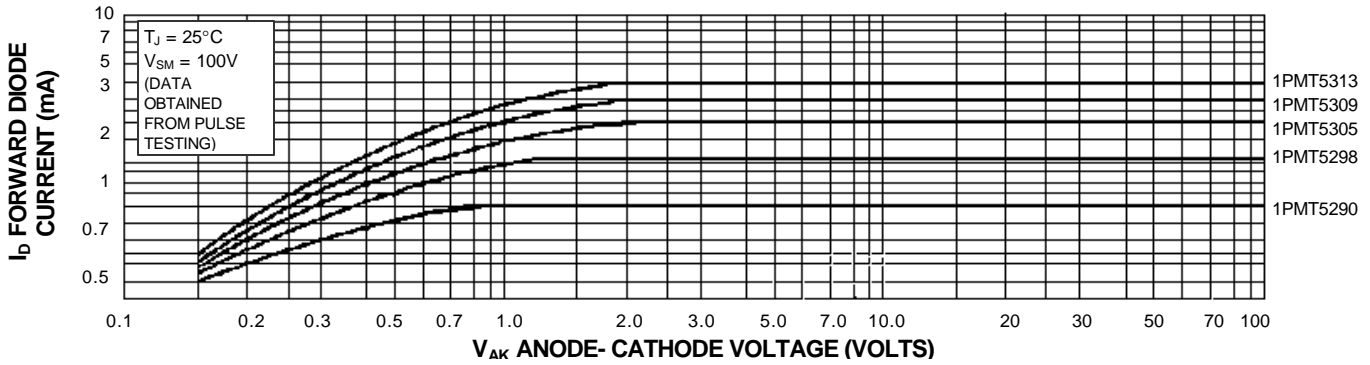
## Electrical Characteristics @ TL=30°C

PART NUMBER	REGULATOR CURRENT $I_p$ (mA) @ $V_S = 25V$			MINIMUM DYNAMIC IMPEDANCE @ $V_S = 25V$ $Z_S$ (M ) (NOTE 1)	MINIMUM KNEE IMPEDANCE @ $V_K = 6.0V$ $Z_K$ (M ) (NOTE 2)	MAXIMUM LIMITING VOLTAGE @ $I_L = 0.8 I_p$ (min) $V_L$ (VOLTS)
	NOM	MIN	MAX			
1PMT5283	0.22	0.198	0.242	25.0	2.75	1.00
1PMT5284	0.24	0.216	0.264	19.0	2.35	1.00
1PMT5285	0.27	0.243	0.297	14.0	1.95	1.00
1PMT5286	0.30	0.270	0.330	9.0	1.60	1.00
1PMT5287	0.33	0.297	0.363	6.6	1.35	1.00
1PMT5288	0.39	0.351	0.429	4.10	1.00	1.05
1PMT5289	0.43	0.387	0.473	3.30	0.870	1.05
1PMT5290	0.47	0.423	0.517	2.70	0.750	1.05
1PMT5291	0.56	0.504	0.616	1.90	0.560	1.10
1PMT5292	0.62	0.558	0.682	1.55	0.470	1.13
1PMT5293	0.68	0.612	0.748	1.35	0.400	1.15
1PMT5294	0.75	0.675	0.825	1.15	0.335	1.20
1PMT5295	0.82	0.738	0.902	1.00	0.290	1.25
1PMT5296	0.91	0.819	1.001	0.880	0.240	1.29
1PMT5297	1.00	0.900	1.100	0.800	0.205	1.35
1PMT5298	1.10	0.990	1.210	0.700	0.180	1.40
1PMT5299	1.20	1.06	1.32	0.640	0.155	1.45
1PMT5300	1.30	1.17	1.43	0.580	0.135	1.50
1PMT5301	1.40	1.26	1.54	0.540	0.115	1.55
1PMT5302	1.50	1.35	1.65	0.510	0.105	1.60
1PMT5303	1.60	1.44	1.76	0.475	0.092	1.65
1PMT5304	1.80	1.62	1.98	0.420	0.074	1.75
1PMT5305	2.00	1.80	2.20	0.395	0.061	1.85
1PMT5306	2.20	1.98	2.42	0.370	0.052	1.95
1PMT5307	2.40	2.16	2.64	0.345	0.044	2.00
1PMT5308	2.70	2.43	2.97	0.320	0.035	2.15
1PMT5309	3.00	2.70	3.30	0.300	0.029	2.25
1PMT5310	3.30	2.97	3.63	0.280	0.024	2.35
1PMT5311	3.60	3.24	3.96	0.265	0.020	2.50
1PMT5312	3.90	3.51	4.29	0.255	0.017	2.60
1PMT5313	4.30	3.87	4.73	0.245	0.014	2.75
1PMT5314	4.70	4.23	5.17	0.235	0.012	2.90

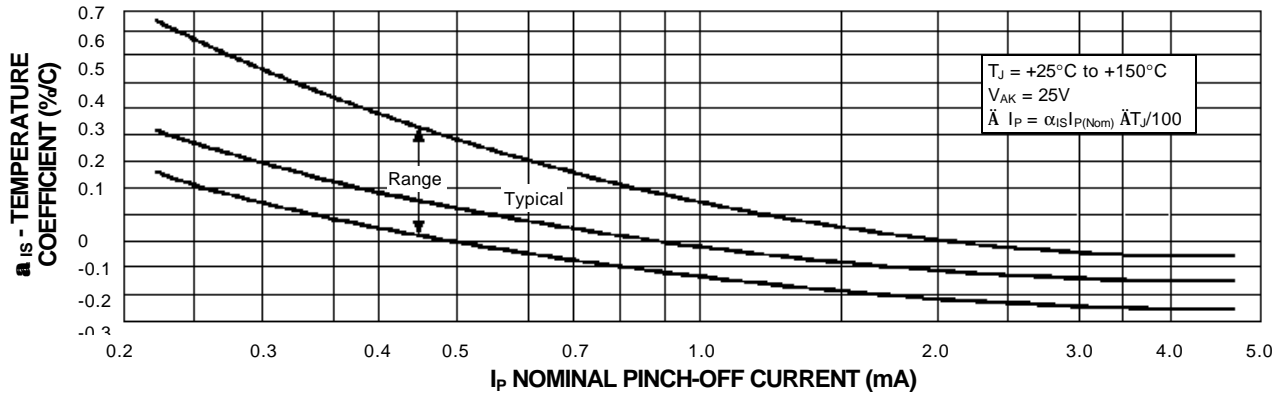
**NOTE 1:**  $Z_S$  is measured by superimposing a 90 Hz rms signal to 10% of  $V_S$  on  $V_S$ .

**NOTE 2:**  $Z_K$  is derived by superimposing a 90 Hz rms signal to 10% of  $V_K$  on  $V_K$ .

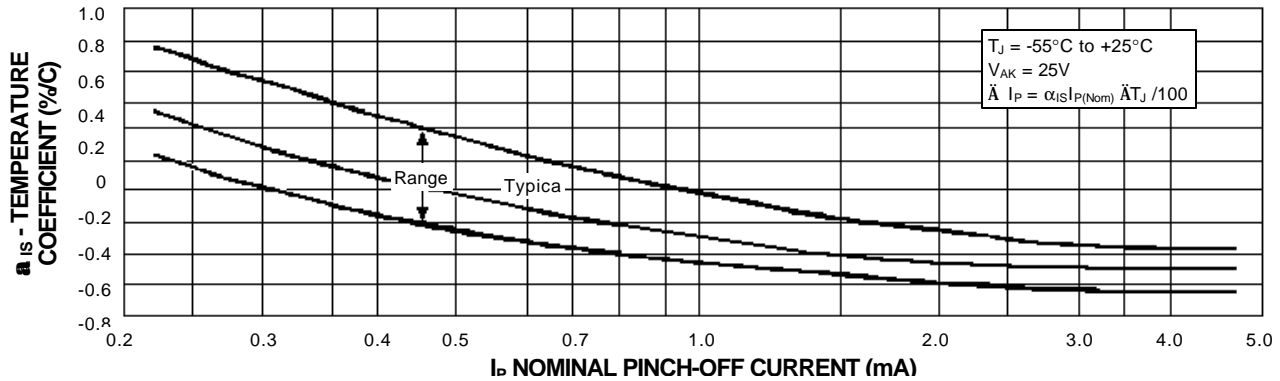
Typical Forward Characteristics



Temperature Coefficient



Temperature Coefficient



SYMBOLS AND DEFINITIONS

- $I_b$  Diode Current
- $\alpha_{IS}$  Current Temperature Coefficient.
- $I_P$  Pinch-off Current: Regulator current at specified Test Voltage,  $V_S$ .  $I_P$  is some times identified as  $I_S$
- POV Peak Operating Voltage: Maximum voltage to be applied to the device.
- $V_K$  Knee Impedance test voltage: Specified voltage used to establish Knee Impedance
- $V_L$  Limiting Voltage: Measured at  $I_L$ ,  $V_L$ , together with Knee ac Impedance,  $Z_K$ , indicates the Knee characteristic of the device
- $V_S$  TEST VOLTAGE: Voltage at which  $I_P$  and  $Z_S$  are specified
- $Z_K$  Knee ac impedance at Test Voltage: To test  $Z_K$  a 90Hz signal  $V_K$  with rms value equal to 10% of test voltage  $V_K$  is superimposed on  $V_K$ :  $Z_K = V_K / i_K$  where  $i_K$  is the resultant ac current due to  $v_K$ . To provide the most constant current from the diode,  $Z_K$  should be as high as possible, therefore, a minimum value of  $Z_K$  is specified.
- $Z_S$  AC Impedance at Test Voltage: Specified as a minimum value. To test for  $Z_S$ , a 90 Hz signal  $V_S$  with rms value equal to 10% of test voltage,  $V_S$  is superimposed on  $V_S$ :  $Z_S = v_S / i_S$  where  $i_S$  is the current due to  $v_S$ .
- $I_L$  Limiting Current 80% of  $I_P$  minimum used to determine Limiting Voltage,  $V_L$
- $V_{AK}$  anode to cathode Voltage

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Datasheets for electronics components.