

VACTEC GENERAL PURPOSE VACTROLS

Bulletin VTL 9

MAXIMUM RATINGS	
Maximum case dissipation (5)	400 mW — derate 10 mW/°C above 35°C — case
Maximum cell power	200 mW — derate 4 mW/°C above 25°C — case,
Isolation voltage	500V
Thermal resistance— case to ambient	40°C/W
Ambient temperature	-40°C to +75°C

SPECIFICATIONS @ 25°C

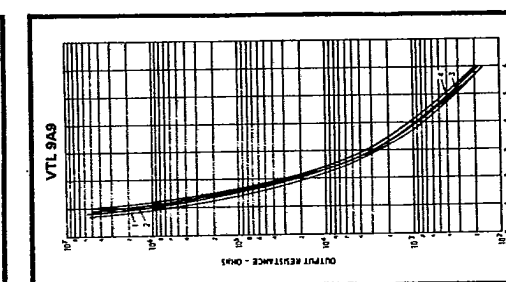
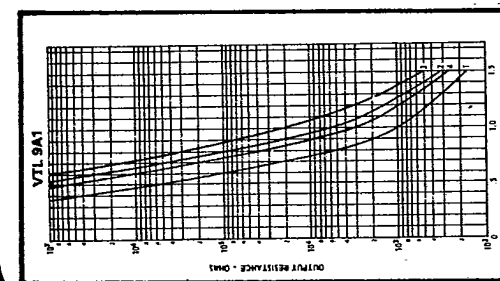
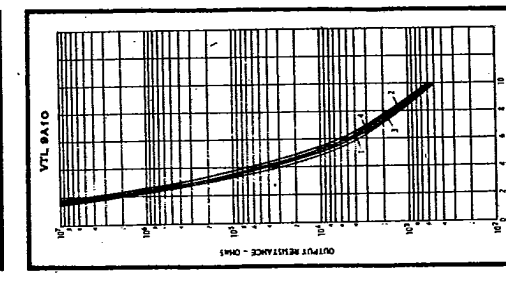
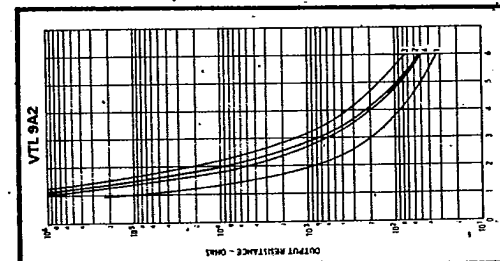
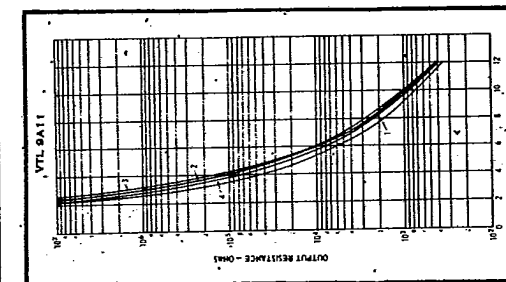
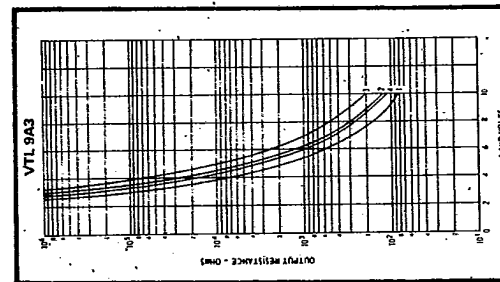
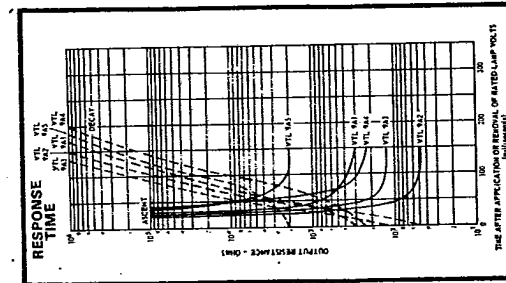
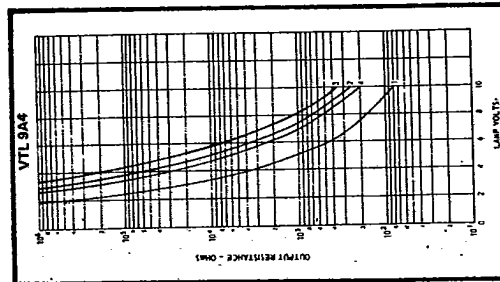
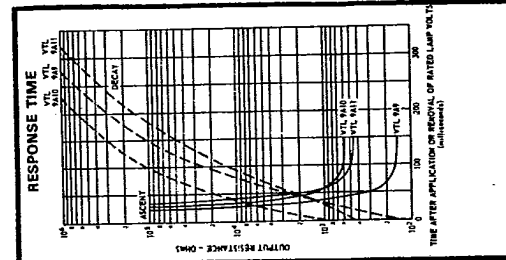
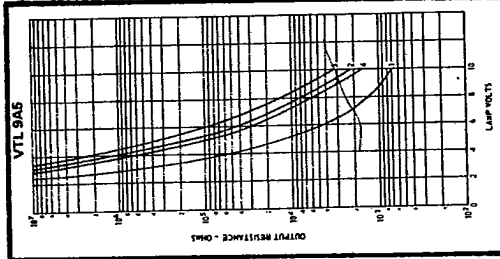
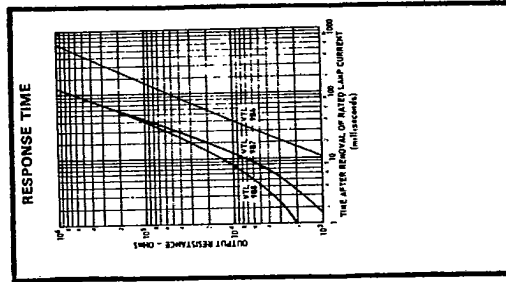
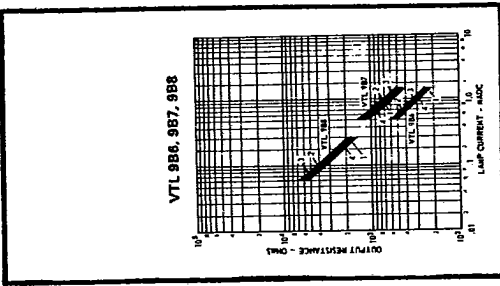
Part Number	LAMP Volts	mA	PHOTOCELL			RESPONSE — mSec (5)			
			Dark Admittance (typ)	Light Admittance (max)	OFF (min)	ON (max)	Dark Cell Ascent (typ)	Light Cell Descent (max)	
VTL9A1	1.5	50	150	400	10 ⁷	10 ⁷	70	350	100
VTL9A2	6.0	40	30	60	10 ⁷	50	50	350	100
VTL9A3	10	14	80	250	10 ⁷	55	160	100	100
VTL9A4	10	22	65	300	10 ⁷	80	400	100	100
VTL9A5	10	22	700	1500	10 ⁷	80	225	200	200
VTL9A9	6.0	40	110	200	10 ⁷	55	250	300	300
VTL9A10	10	14	550	800	10 ⁷	60	150	300	300
VTL9A11	12	25	400	600	10 ⁷	90	250	300	300

These Vactrols combine incandescent or neon lamps in a low cost aluminum case. Both single and dual cell units are available in the same case size.

These units may be operated in the ON-OFF mode or in proportional control circuits with a wide range of control. Neon units are intended primarily for ON-OFF operation although a 10:1 variation in lamp current is usually workable. Neon lamps are of the "circuit components" type which have enhanced breakdown characteristics in total darkness. Applications include photochoppers, DC isolators, noiseless switching, automatic gain controls, audio limiting and compression, SCR and Triac firing, audio effects and computer interfacing. Low resistance units are compatible with TTL logic.

NOTES:
 (1) Incandescent Lamps: The rated voltage at the maximum DC or RMS value which may be applied to the lamp is shown. The maximum current which will flow at the rated voltage. Lamps may be operated at any lower voltage.
 (2) Neon Lamps: The photocell resistance values apply for DC lamp currents. These lamps require a minimum voltage to ignite the gas within the lamp. The voltage at which the lamp ignites is shown. The photocell resistance is constant regardless of the current through the lamp. The lower voltage is called the "sustaining voltage." When the voltage across the lamp drops and remains substantially constant, the lamp turns off. Sustaining voltages for the neon modules are:
 VTL9B5, 9B7 Sustaining 50VDC
 VTL9B6, 9B8 Sustaining 60VDC
 Before operation, the resistance of the lamp is very high. However, after breakdown, the lamp resistance drops to a low value, shown in the table. A resistor must be placed in series with the lamp to limit the current to the rated value. The approximate value for this resistor is given by the following formula:
 $R = \frac{V_s - V_r}{I_r}$
 where
 V_s = Supply voltage, DC or RMS
 V_r = Lamp resistance, DC or RMS
 I_r = Lamp current, DC or RMS
 While neon lamps will ignite and glow at less than the indicated breakdown value, it is recommended that the supply voltage be at least 10% greater than this value.
 AC Operation: The lamp must be energized each half cycle of AC. To assure operation only in the ON-OFF mode, minimum response times are recommended:
 VTL9B5, VTL9B6, VTL9B7 100VAC
 VTL9B8 60VAC
 After breakdown, the lamp resistance is very low. To prevent the lamp current from exceeding the rated value, special series resistors for 120VAC operation are provided for VTL9B5, VTL9B6, VTL9B7, VTL9B8, VTL9B9, VTL9B10, VTL9B11, VTL9B12, VTL9B13, VTL9B14, VTL9B15, VTL9B16, VTL9B17, VTL9B18, VTL9B19, VTL9B20, VTL9B21, VTL9B22, VTL9B23, VTL9B24, VTL9B25, VTL9B26, VTL9B27, VTL9B28, VTL9B29, VTL9B30, VTL9B31, VTL9B32, VTL9B33, VTL9B34, VTL9B35, VTL9B36, VTL9B37, VTL9B38, VTL9B39, VTL9B40, VTL9B41, VTL9B42, VTL9B43, VTL9B44, VTL9B45, VTL9B46, VTL9B47, VTL9B48, VTL9B49, VTL9B50, VTL9B51, VTL9B52, VTL9B53, VTL9B54, VTL9B55, VTL9B56, VTL9B57, VTL9B58, VTL9B59, VTL9B60, VTL9B61, VTL9B62, VTL9B63, VTL9B64, VTL9B65, VTL9B66, VTL9B67, VTL9B68, VTL9B69, VTL9B70, VTL9B71, VTL9B72, VTL9B73, VTL9B74, VTL9B75, VTL9B76, VTL9B77, VTL9B78, VTL9B79, VTL9B80, VTL9B81, VTL9B82, VTL9B83, VTL9B84, VTL9B85, VTL9B86, VTL9B87, VTL9B88, VTL9B89, VTL9B90, VTL9B91, VTL9B92, VTL9B93, VTL9B94, VTL9B95, VTL9B96, VTL9B97, VTL9B98, VTL9B99, VTL9C00, VTL9C01, VTL9C02, 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VTL9



- Notes:
1. All curves are typical.
 2. Where guaranteed transfer characteristics are required over a range of input conditions, please consult the factory.
 3. Figures 1-4 show input voltage vs. output resistance after the following adapt conditions:
 - (1) 25°C - 24 hour no input
 - (2) 25°C - 24 hour at rated input
 - (3) 50°C - 24 hour at rated input
 - (4) -20°C - 24 hour at rated input
 4. Incandescent lamp ascent times are reduced approximately 25-30 ms for rapid re-application of lamp voltage.