

UNIBLITZ[®] Typical OEM Drive Circuits



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Here are descriptions of six typical drive circuits that can be used to operate **UNIBLITZ** shutters. (Each description has a corresponding drawing.)

L-0217 - Typical Dual Stage Constant Current Drive – Advantages include small component outline, increased lifetime to shutters operated with this drive type, operation at 24VDC, and the shutter can be used with its standard coil configuration. This device is similar in scope to our D880 driver. Disadvantages include, some devices (VS14/VS25) require a stop damping upgrade to an “E” format, driver requires adjustment (hi current duration, high current level, and low current level) depending on shutter used, requires 1.5A supply to ensure proper shutter operation, and shutter will not operate at published timing specifications (typically shutter speed can be reduced by 25%).

L-0060 - Typical Shutter Drive Circuit – (For the VS35/VS45 see the L-0208 driver) This device is similar in scope to our bench top shutter drivers (VMM series) and the 122-BP. Advantages include, same driver type all shutters are calibrated to, no modifications to the shutter are necessary, high voltage is only used to charge the capacitors, and frequency of exposures are only limited by source impedance. Disadvantages include, large capacitors required – larger PCB footprint, high voltage regulation circuit not shown. This circuit is covered under a US patent. Used for all shutters up to 25mm aperture.

L-0208 - Typical VS35/CS45/CS65 Shutter Drive Circuit – Similar to L-0060 except the capacitor value is 560µf, high voltage is +70VDC, and hold voltage indicated is two stage. If the shutter is open for 2-3 seconds or longer, the TIMER/INTERFACE will turn off the TIP106 allowing the +6.75VDC to hold the shutter in the open position for the remainder of the exposure. The TIP106 will turn back on at the conclusion of the exposure. The L-0208 circuit, like the L-0060, is also covered under the same US patent.

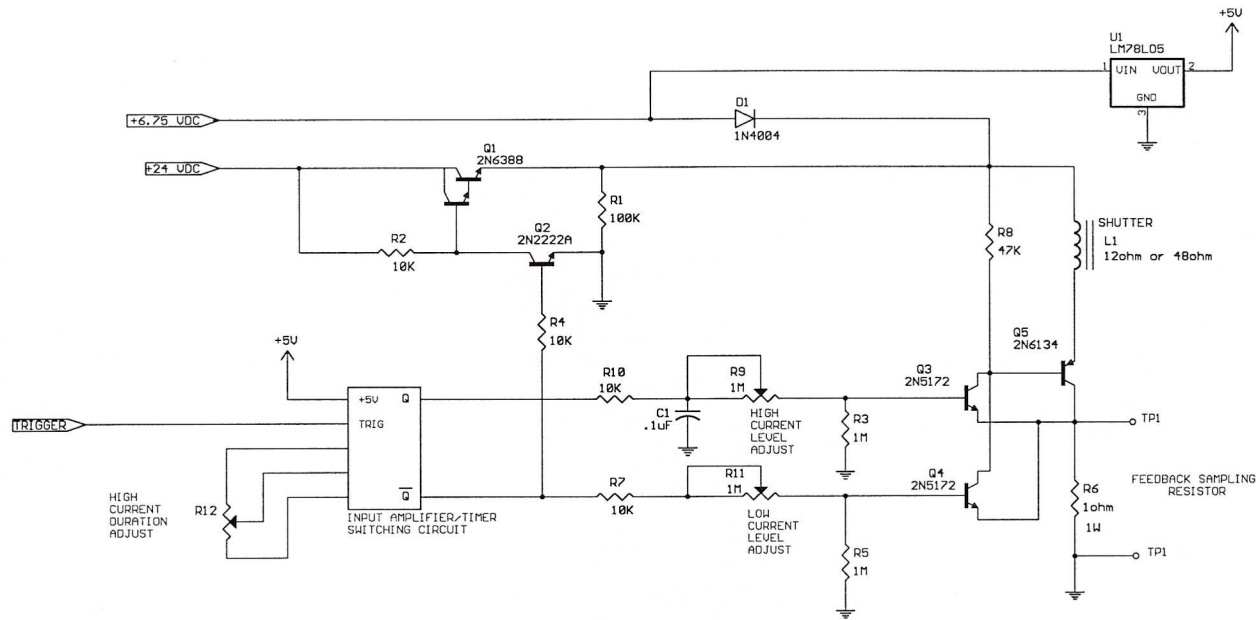
10-0501 - Limited Shutter Drive Circuit – Advantages include, small number of components required, will operate all shutter types as shown up to 25mm. For larger shutters contact technical support for R1 and C1 values to ensure proper operation. Disadvantages include, energy wasted in R1 when shutter is held in open position, and frequency of exposures is limited by rate of capacitor discharge through R1 after shutter is closed. This drive is not efficient and not recommended for OEM use.

L-0099 - CCS-4B Shutter Drive (24VDC) – Advantages include, operation at 24VDC, 24VDC only required to charge on-board initiating capacitors, and smaller capacitors required due to lower voltage drive. This driver is similar in scope to our CCS-5 driver. A shutter modified with a 2.5V “K” type actuator coil is required for operation with this circuit.

L-0102 - CCS-4C Shutter Drive (12VDC) – Advantages include, operation at 12VDC, 12VDC only required to charge on-board initiating capacitors, and smaller capacitors required due to lower voltage drive. A shutter modified with a 2.5V “K” type actuator coil is required for operation with this circuit. The shutter will operate a decreased shutter speed than with the +24VDC driver. Lifetime of the shutter would be enhanced with the lower excitation. A +12VDC driver is not recommended for the VS35 or VS45 due to the size of the capacitor required.

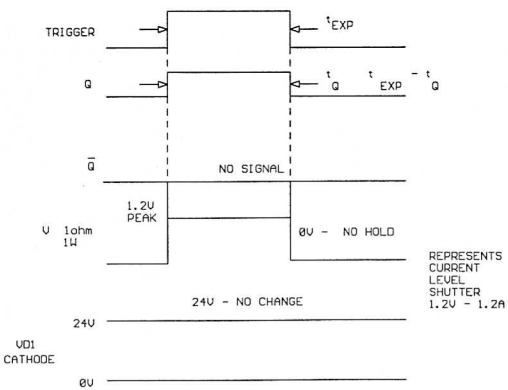
3/19/2003

DATE	SYM.	REVISION RECORD	AUTH	DR
3/31/99	A	REDRAWN IN EAGLE LS2/3/6 LOW CURRENT LEVEL WAS .450A HIGH CURRENT LEVEL WAS .140A	STP.	H. Y.

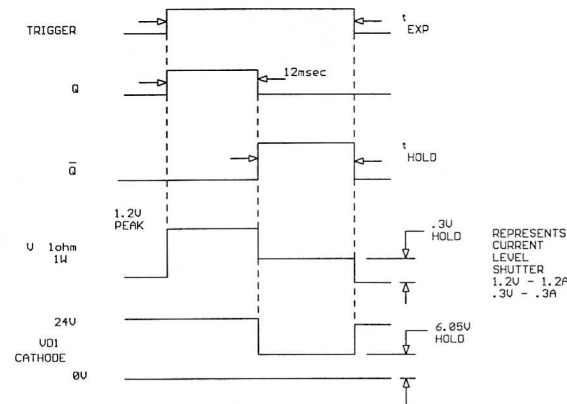


	TIME FOR HIGH CURRENT PULSE DURATION	LOW CURRENT LEVEL	HIGH CURRENT LEVEL
US35	35ms	.3A	1.2A
US25	12ms	.3A	1.2A
US14	8ms	.3A	1.0A
LS6/LS3	4ms	.140A OR PEAK	.450A OR PEAK
LS2	3ms	.140A OR PEAK	.450A OR PEAK

CONTROL TIMING SIGNALS - US25
t_{EXP} < HIGH CURRENT DURATION



CONTROL TIMING SIGNALS - US25
t_{EXP} > HIGH CURRENT DURATION



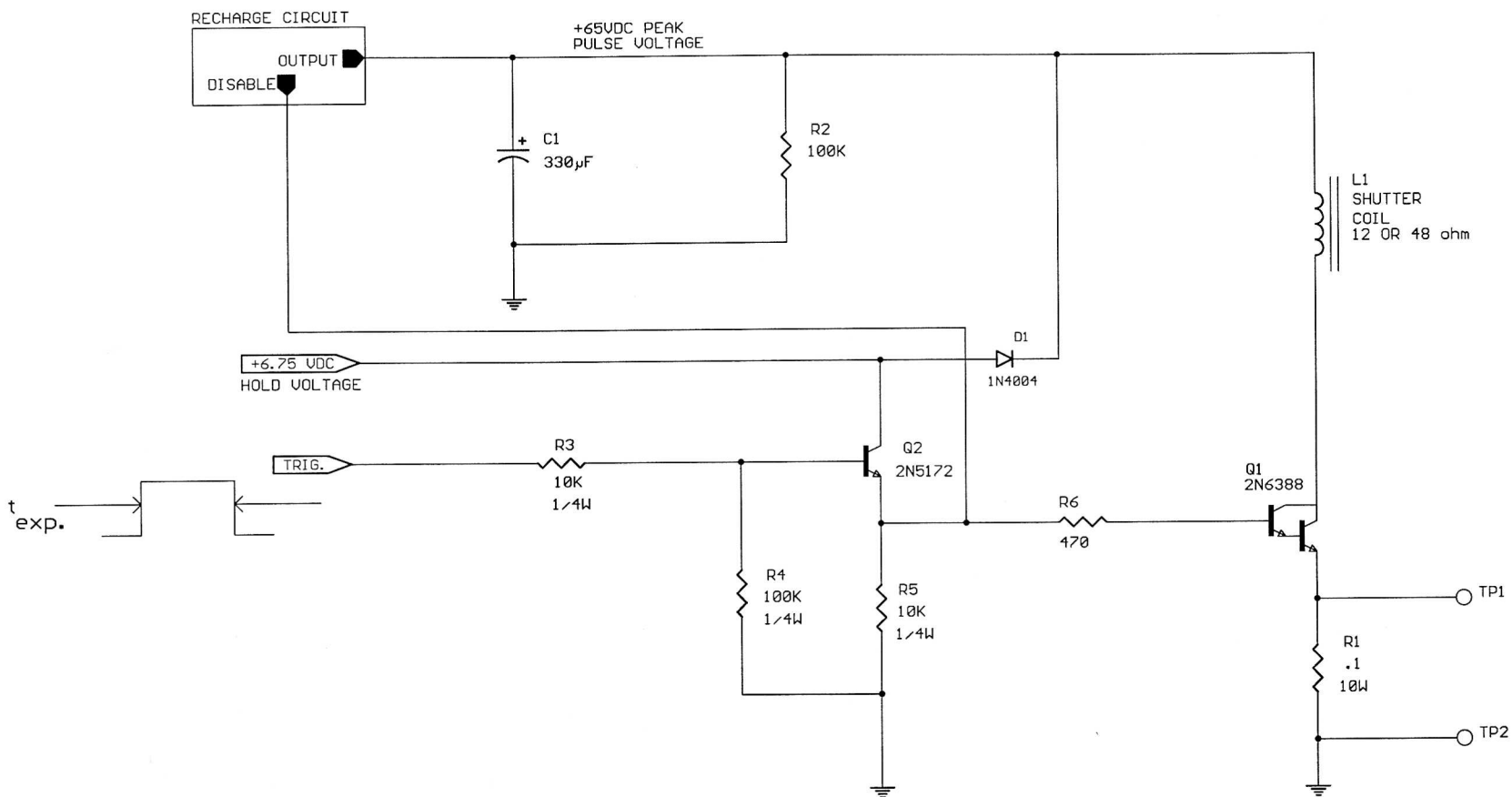
NOTES:

- ALL RESISTORS ARE 1/4W UNLESS OTHERWISE NOTED.
- MONITOR VOLTAGE ACROSS R6 WHILE ADJUSTING R9, R11, AND R12. ADJUST PER CHART ACCORDING TO SHUTTER BEING DRIVEN. OPERATE SHUTTER WITH A 50msec. EXPOSURE AND A 5Hz. REPETITION RATE.
- WITHOUT TRIGGER SIGNAL PRESENT OR DURING HIGH CURRENT PULSE. Q1 IS ON. VOLTAGE AT D1 CATHODE MUST BE APPROXIMATELY 24V. AT HOLD LEVEL. Q1 IS OFF. VOLTAGE AT D1 CATHODE MUST BE 6.05V (ONE DIODE DROP BELOW 6.75V). SEE CONTROL TIMING SIGNALS.
- MINIMUM REGULATED POWER SUPPLY REQUIREMENTS:
+24VDC AT 1.5A. +6.75VDC AT .5A.

VINCENT ASSOCIATES
ROCHESTER, NY 14607

TITLE: TYPICAL DUAL STAGE CONSTANT CURRENT DRIVE		DRAWN: KRIS M.	
		SCALE: NONE	
FILE NAME:	APPROVED BY:	Date: 10/9/97	
TYP	10-13-97 STP.	REVISED:	
Sheet: 1/2	SIZE: B	REV: A	DRAWING NO. L-0217

DATE	SYM.	REVISION RECORD	AUTH.	DR	CK
6/21/00	A	REDRAWN IN EAGLE	STP	HY	
4/11/01	B	DISABLE WAS ENABLE	STP	HY	

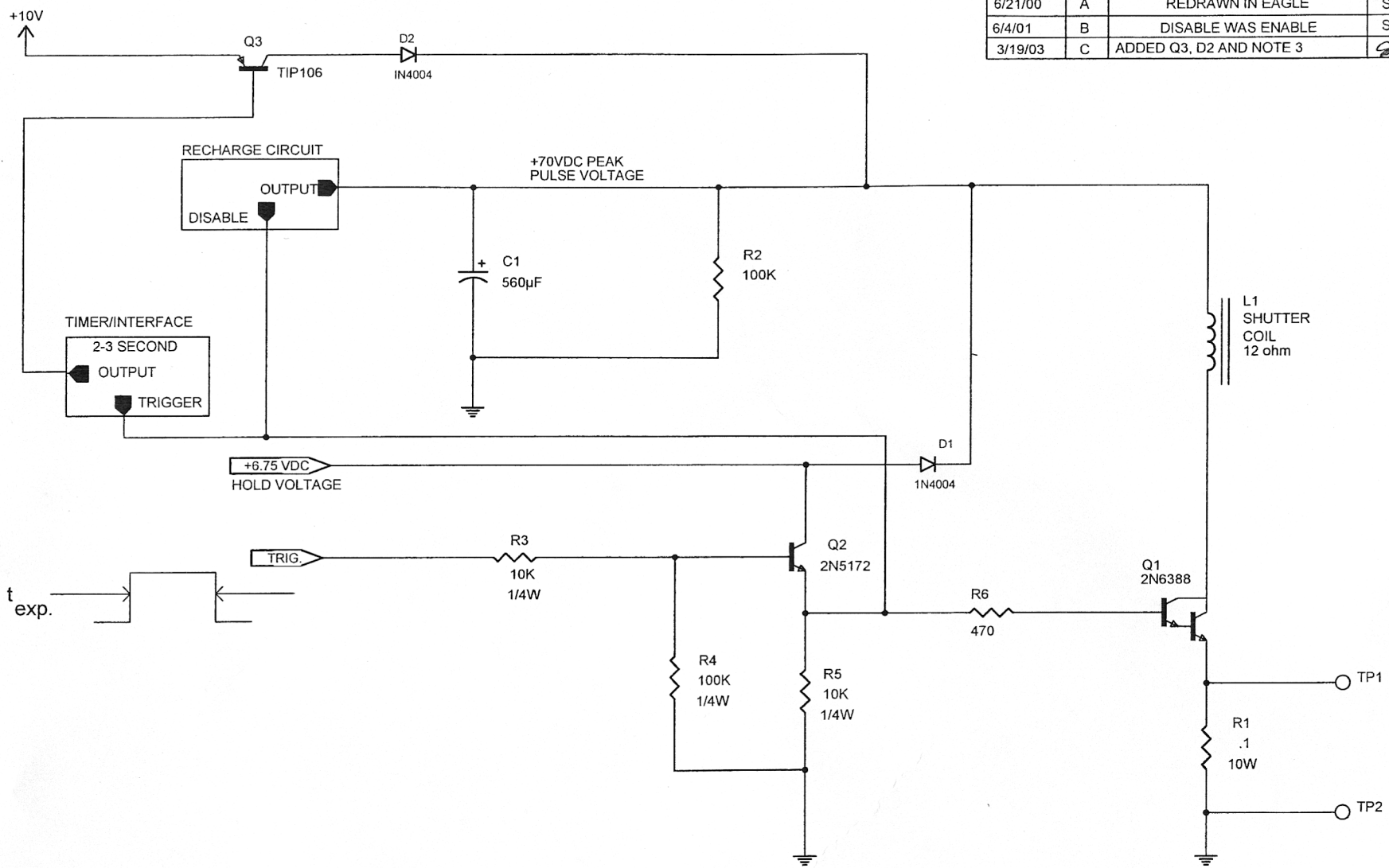


NOTES:

1. ALL RESISTORS 1/2W EXCEPT AS NOTED.
2. VOLTAGE DROP ACROSS TP1 WITH REFERENCE TO TP2, REPRESENT THE CURRENT THROUGH THE SHUTTER COIL.

VINCENT ASSOCIATES ROCHESTER, NY 14607			
TITLE: TYPICAL SHUTTER DRIVE CIRCUIT		DRAWN: KRIS M. SCALE: NONE	
FILE NAME: 25TYPCIR	APPROVED BY: STP. 6/26/95	Date: 6/26/95	Check:
Sheet: 1/1	SIZE: A	REV: B	DRAWING NO.-L-0060

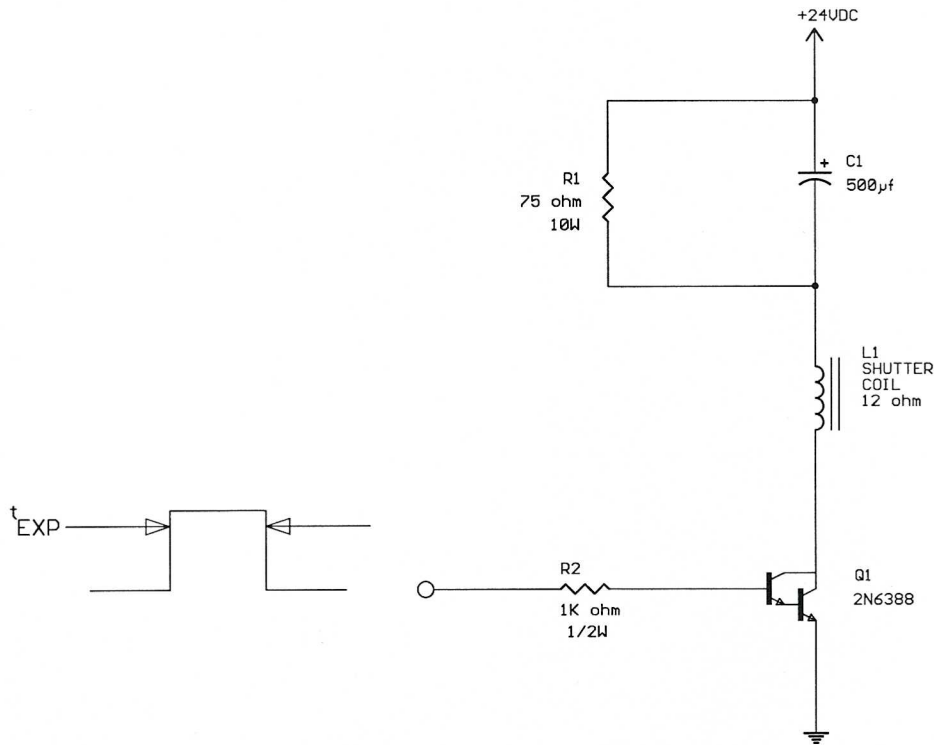
DATE	SYM.	REVISION RECORD	AUTH.	DR	CK
6/21/00	A	REDRAWN IN EAGLE	STP.	HY	
6/4/01	B	DISABLE WAS ENABLE	STP.	HY	
3/19/03	C	ADDED Q3, D2 AND NOTE 3	<i>STP.</i>	HY	



- NOTES:
1. ALL RESISTORS 1/2W EXCEPT AS NOTED.
 2. VOLTAGE DROP ACROSS TP1 WITH REFERENCE TO TP2, REPRESENT THE CURRENT THROUGH THE SHUTTER COIL.
 3. IF SHUTTER IS OPEN FOR 2-3 SECONDS OR LONGER, TIMER/INTERFACE WILL TURN OFF TIP106 ALLOWING +6.75 VDC TO HOLD THE SHUTTER IN THE OPEN POSITION FOR THE REMAINDER OF THE EXPOSURE. TIP106 WILL TURN BACK ON AT THE CONCLUSION OF THE EXPOSURE.

VINCENT ASSOCIATES
ROCHESTER, NY 14620

TITLE: TYPICAL VS35 SHUTTER (LARGE APERTURE) DRIVE CIRCUIT		DRAWN: KRIS A.
FILE NAME: 35TYPCIR		CHECK:
APPROVED BY: STP. 3/20/97		DATE: 3/20/97
Sheet: 1/1		SCALE: NONE
SIZE: A	REV: C	DRAWING NO. L-0208



NOTES:

A. CIRCUIT DESCRIPTION:
 WITH Q1 OFF, C1 IS DISCHARGED. WHEN Q1 SATURATES, 24VDC APPEARS ACROSS L1, OPENING THE SHUTTER. AS C1 CHARGES, R1 CARRIES HOLD CURRENT UNTIL Q1 SWITCHES OFF. WITH Q1 OFF, THE SHUTTER WILL CLOSE. MINIMUM EXPOSURE DETERMINED BY SHUTTER USED AND POWER SUPPLY VOLTAGE.

B. R1 AND C1 VALUES MAY NEED TO BE CHANGED DEPENDING ON APPLICATION AND/OR SHUTTER USED.

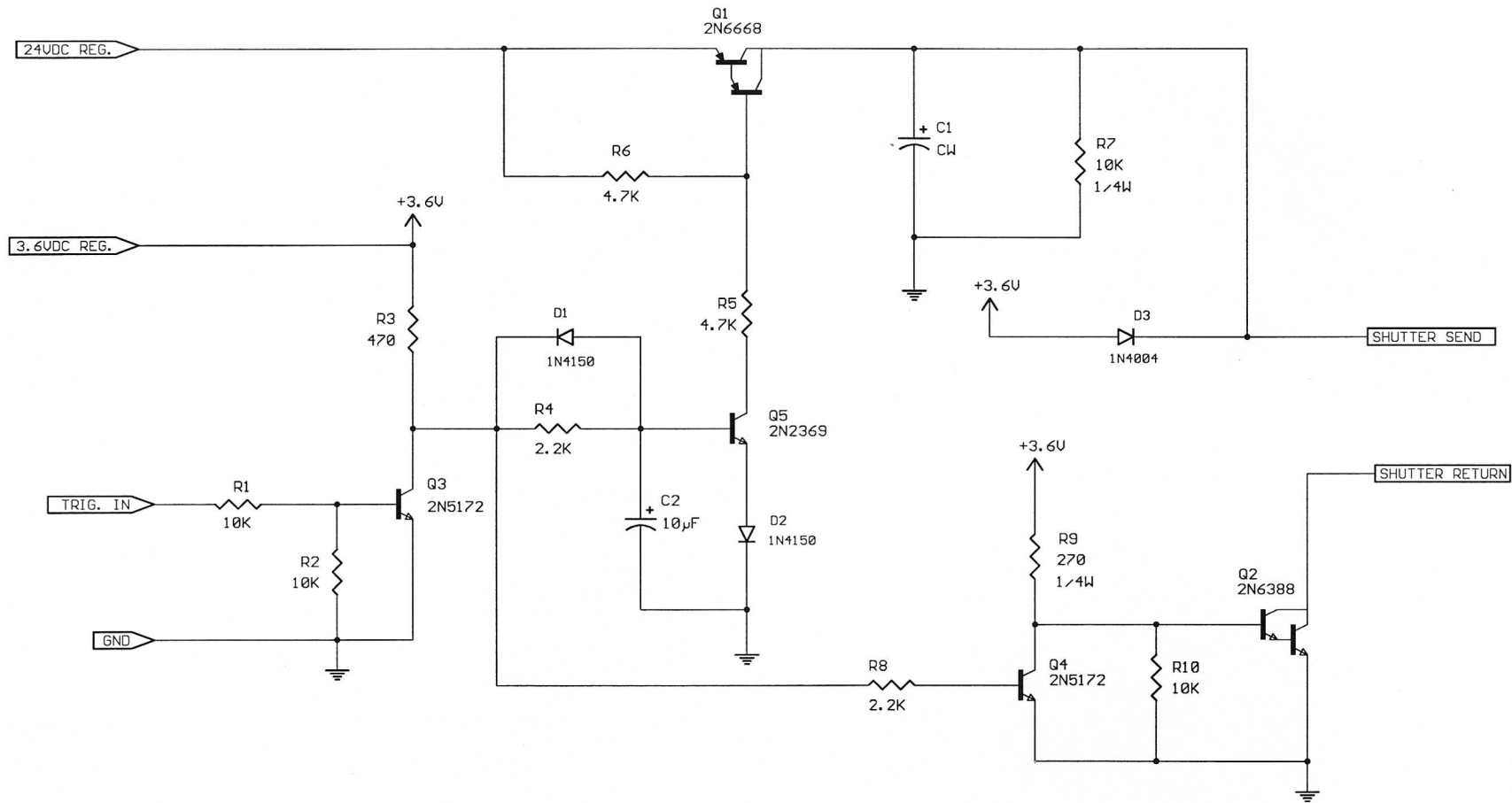
VINCENT ASSOCIATES

ROCHESTER, NY 14607

TITLE: LIMITED SHUTTER DRIVE CIRCUIT		DRAWN: H. YAN
FILE NAME: Limitshdr		CHECK:
APPROVED BY: 1/10/90 STP.		DATE: 3/2/01
Sheet: 1/1		SCALE: NONE
SIZE: A	REV: B	DRAWING NO. 10-0501

3/2/01	B	REDRAWN IN EAGLE	STP		HY
1/10/90	A	REDRAWN	STP		STP
DATE	REV.	REVISION RECORD	AUTH.	CK	DR

DATA	SYM	REVISION RECORD	AUTH	DR	CK
6/21/00	A	REDRAWN IN EAGLE	STP	HY	



NOTES:

1. ALL RESISTORS 1/8W EXCEPT AS NOTED.
2. DECOUPLING THE HIGH VOLTAGE POWER SUPPLY MAY BE NECESSARY.
3. EQUIVALENT DEVICES MAY BE SUBSTITUTED.
4. SHUTTER USED MUST BE EQUIPPED WITH 2.5V (3 ohm) ACTUATOR COIL.
5. CW VALUE: 1470µF/35V - US25 SHUTTER TYPE
3200µF/35V - US35 SHUTTER TYPE

VINCENT ASSOCIATES ROCHESTER, NY 14607		
TITLE: CCS-4B SHUTTER DRIVER (24VDC)		DRAWN: H. YAN SCALE: NONE
FILE NAME: CCS-4B	APPROVED BY: STP. 8/13/92	Date: 8/13/92 Check:
Sheet: 1/1	SIZE: A	REV: A DRAWING NO. L-0099

