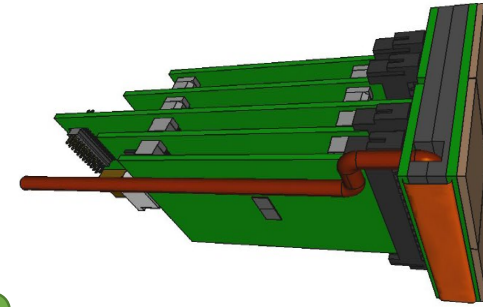


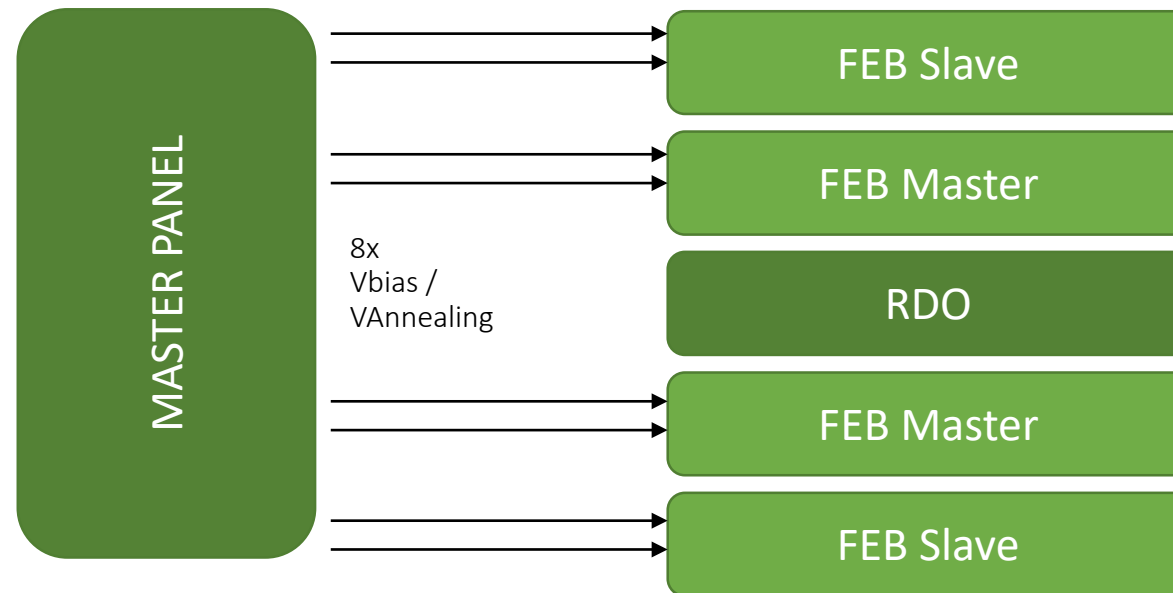
Segmentazione PDU

11/03/2025

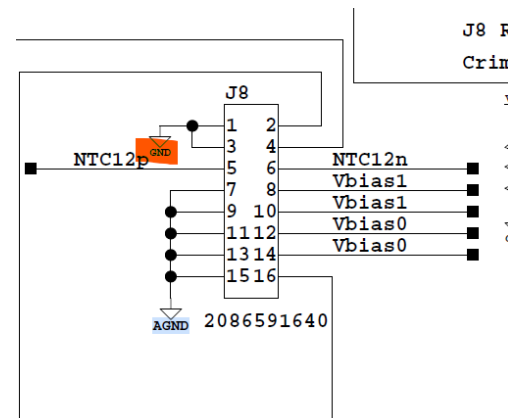
Breve descrizione...



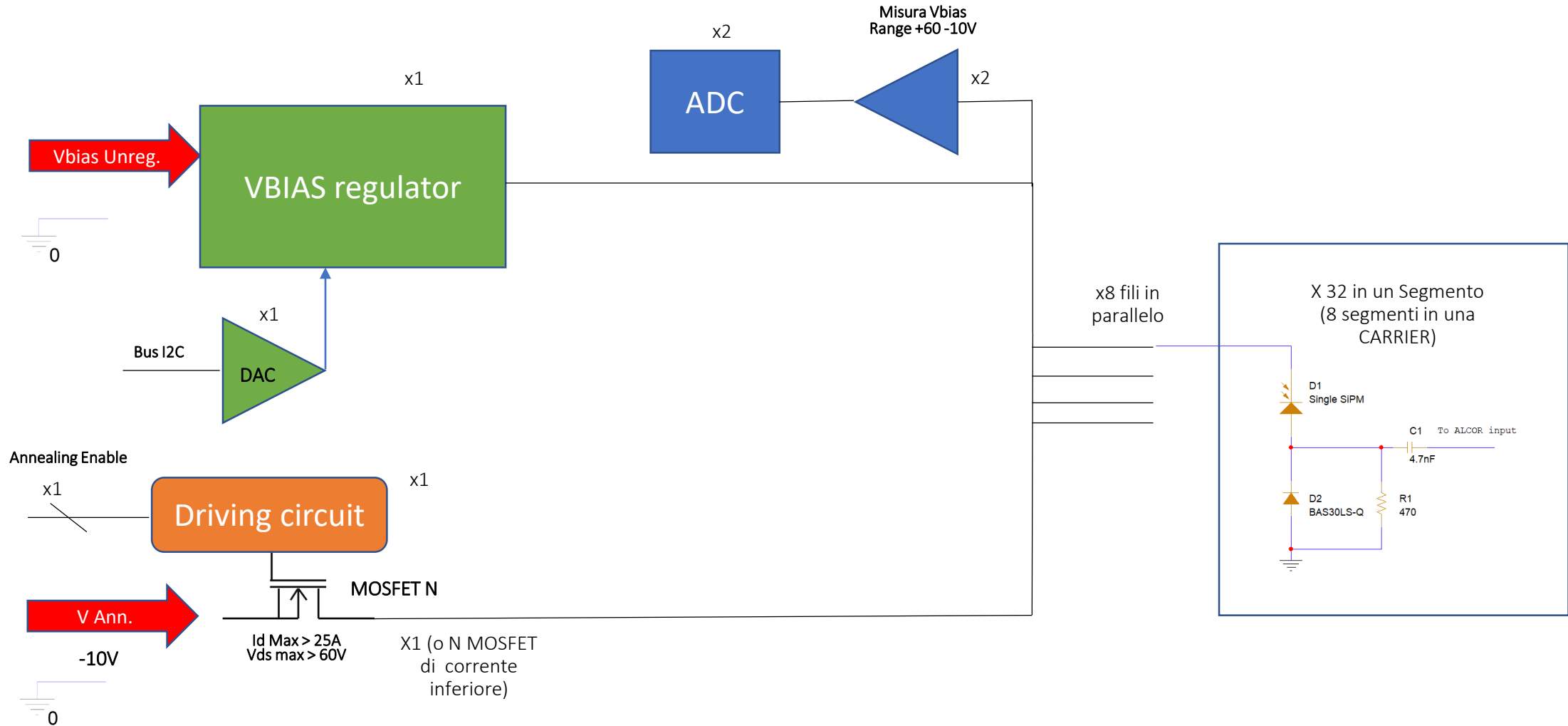
Una PDU



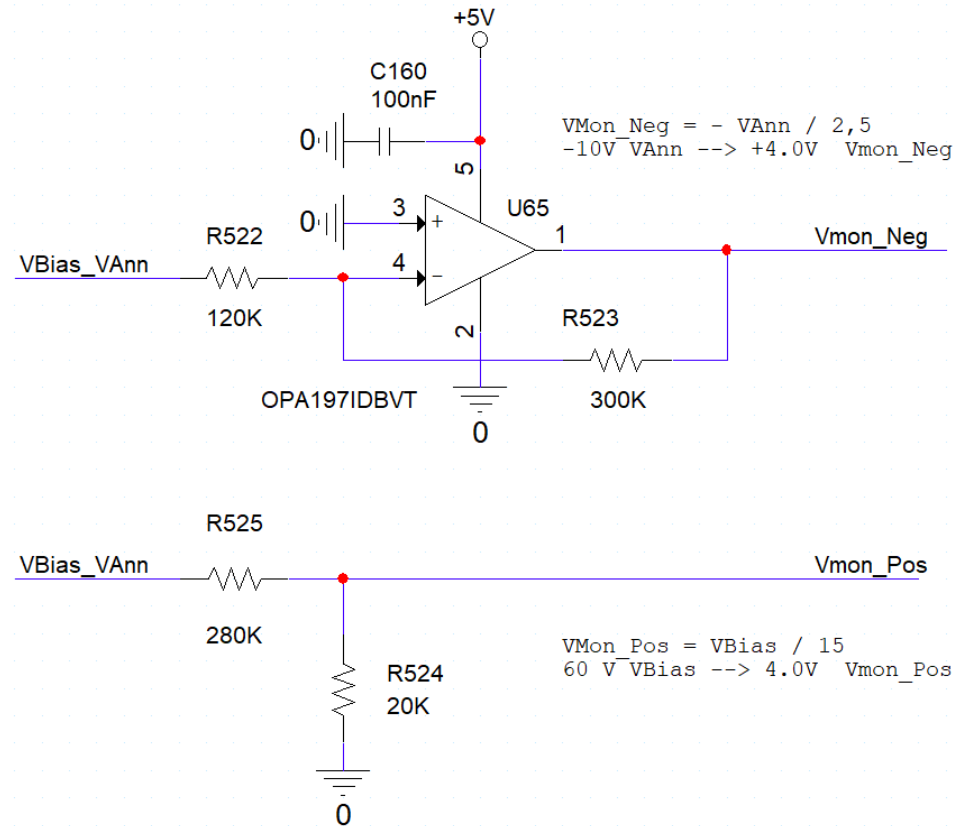
L'alimentazione dei 256 rivelatori è suddivisa in 8 "segmenti" composti da 32 SiPM.



Schema **SEMPLIFICATO** di alimentazione dei rivelatori per ogni PDU (senza Segmentazione)

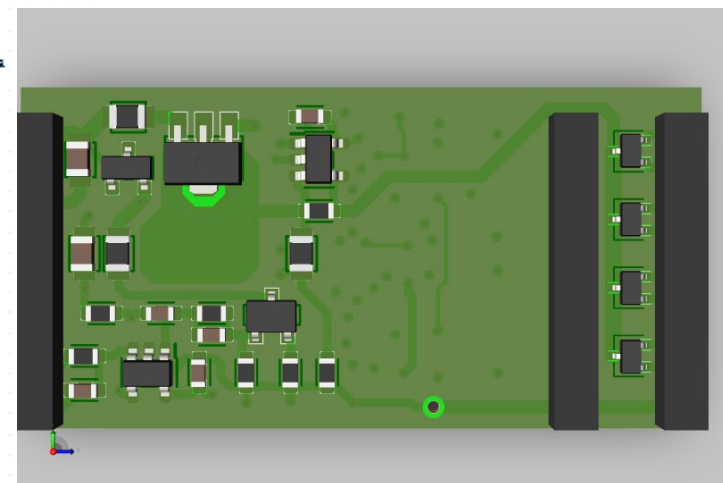
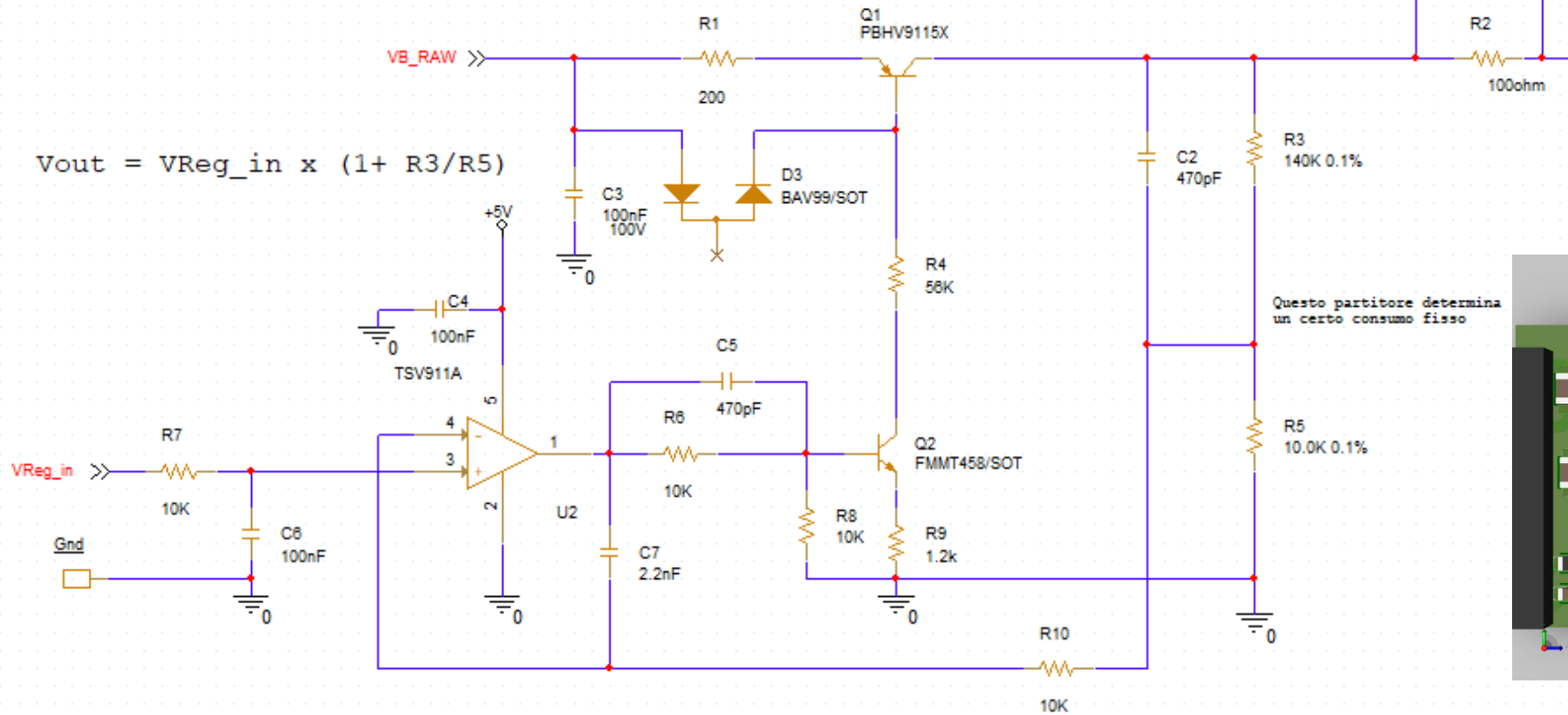
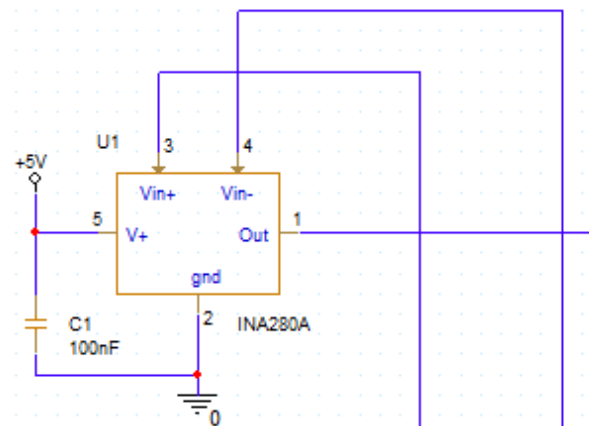
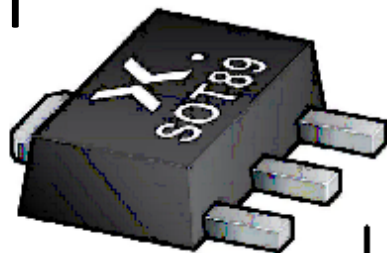


Misuratore Vbias Range +60V -12V (un ingresso con misura positiva e negativa separate)

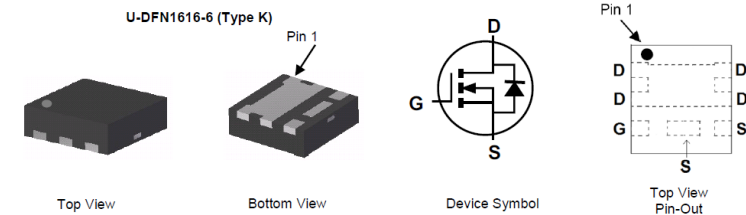
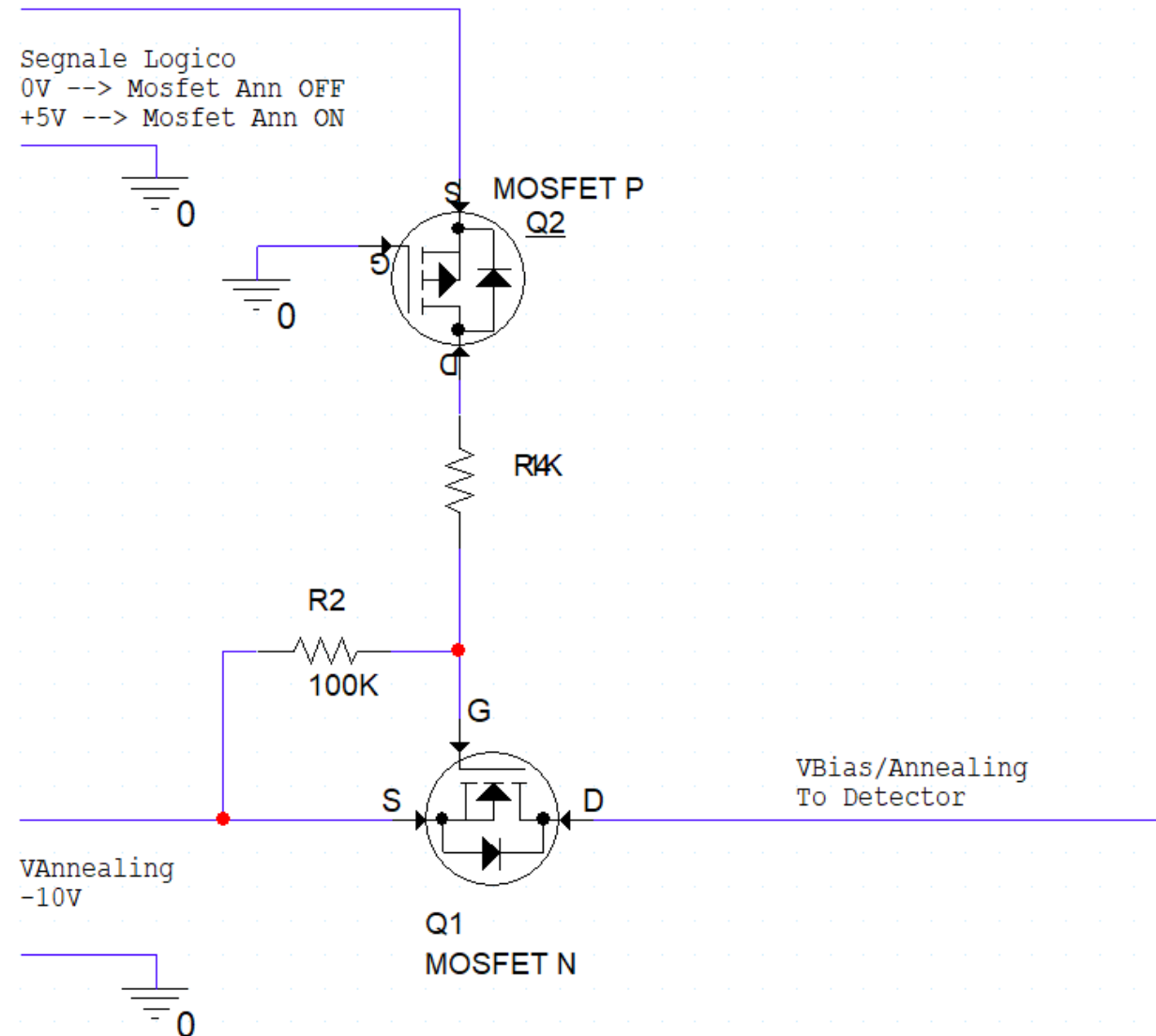


VBias Regulator

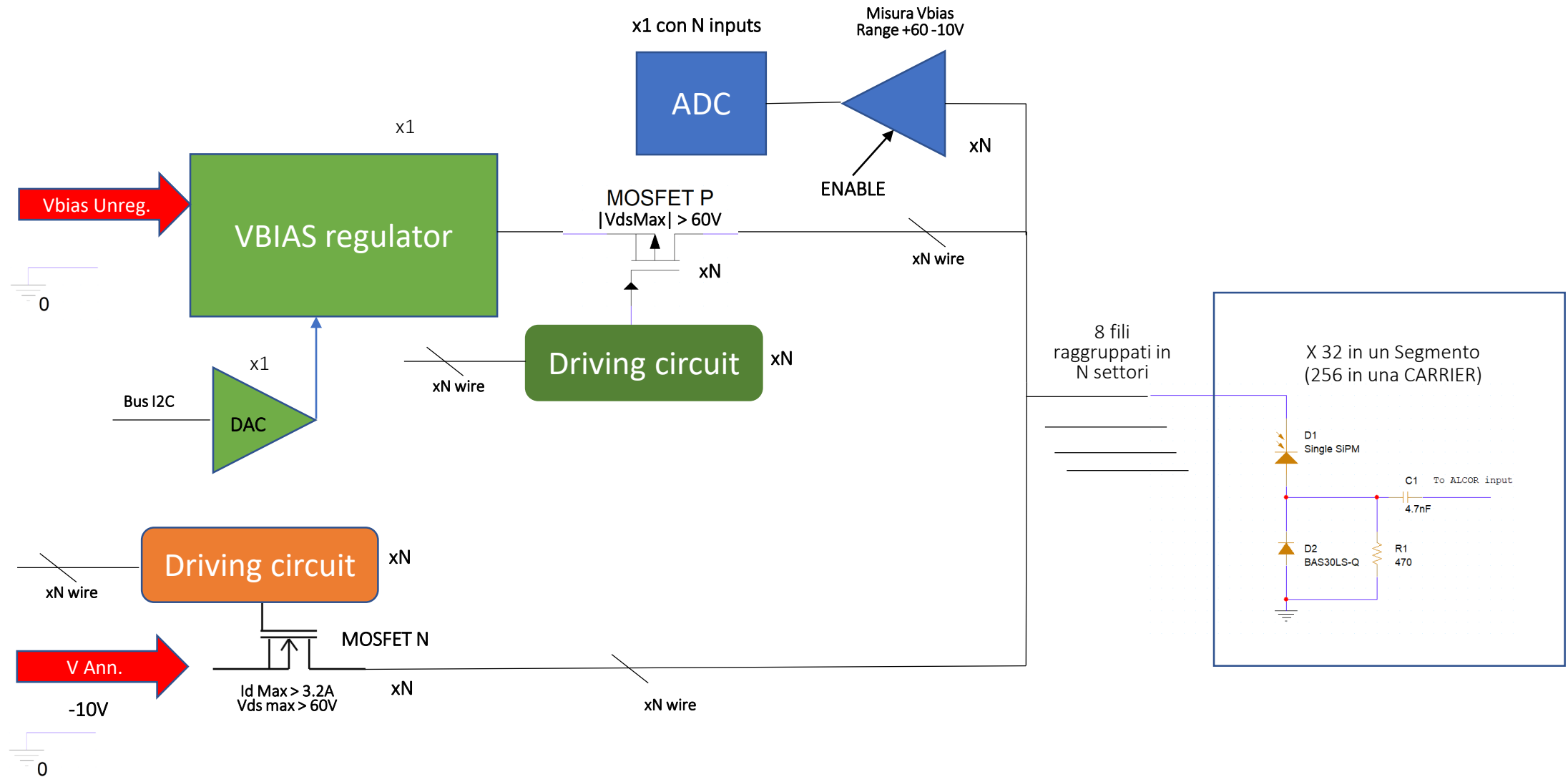
- 9 resistenze
- 7 condensatori
- 2 transistor
- 1 diodo
- 2 circuiti integrati



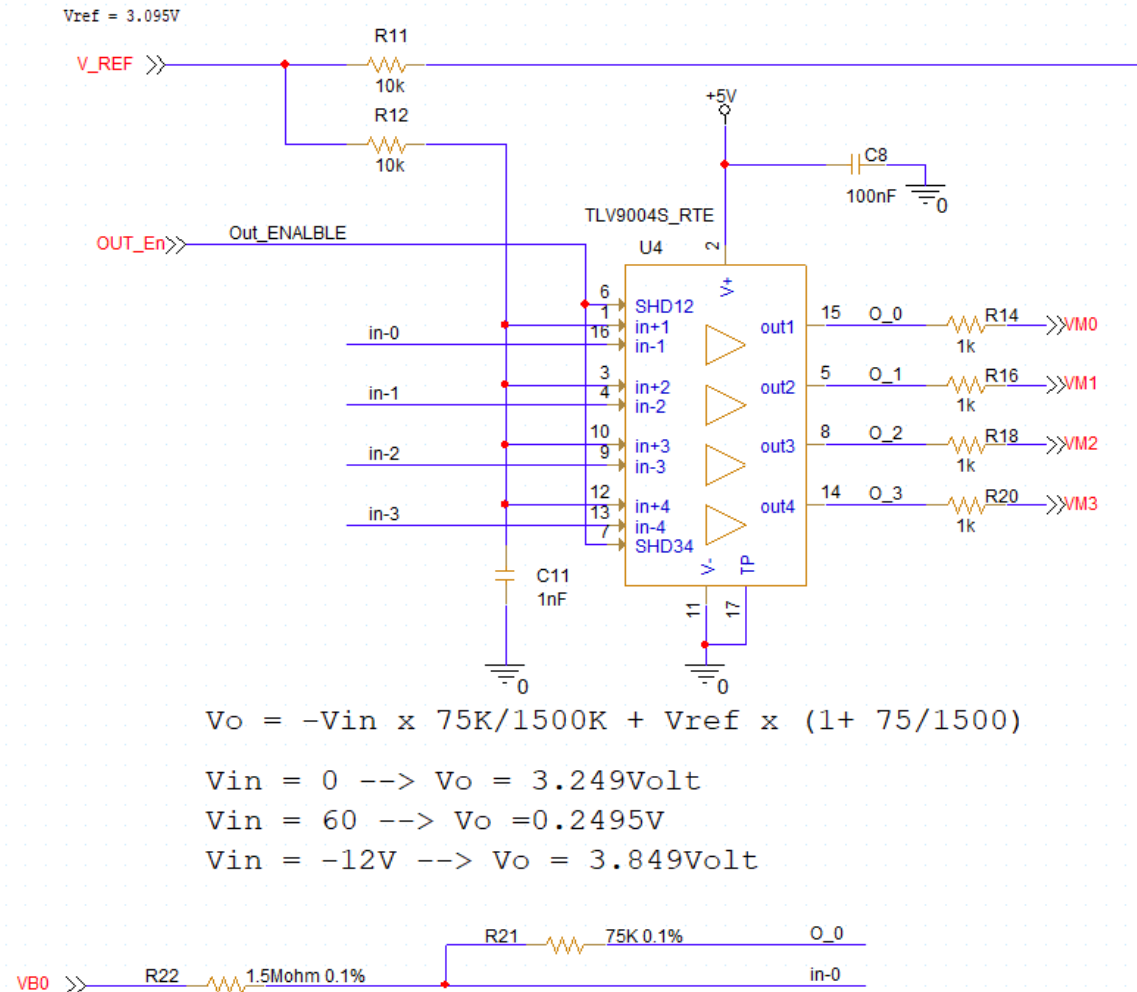
Mosfet di abilitazione ANNEALING circuito di comando



Schema con suddivisione della PDU in più settori (N da 1 a 8)

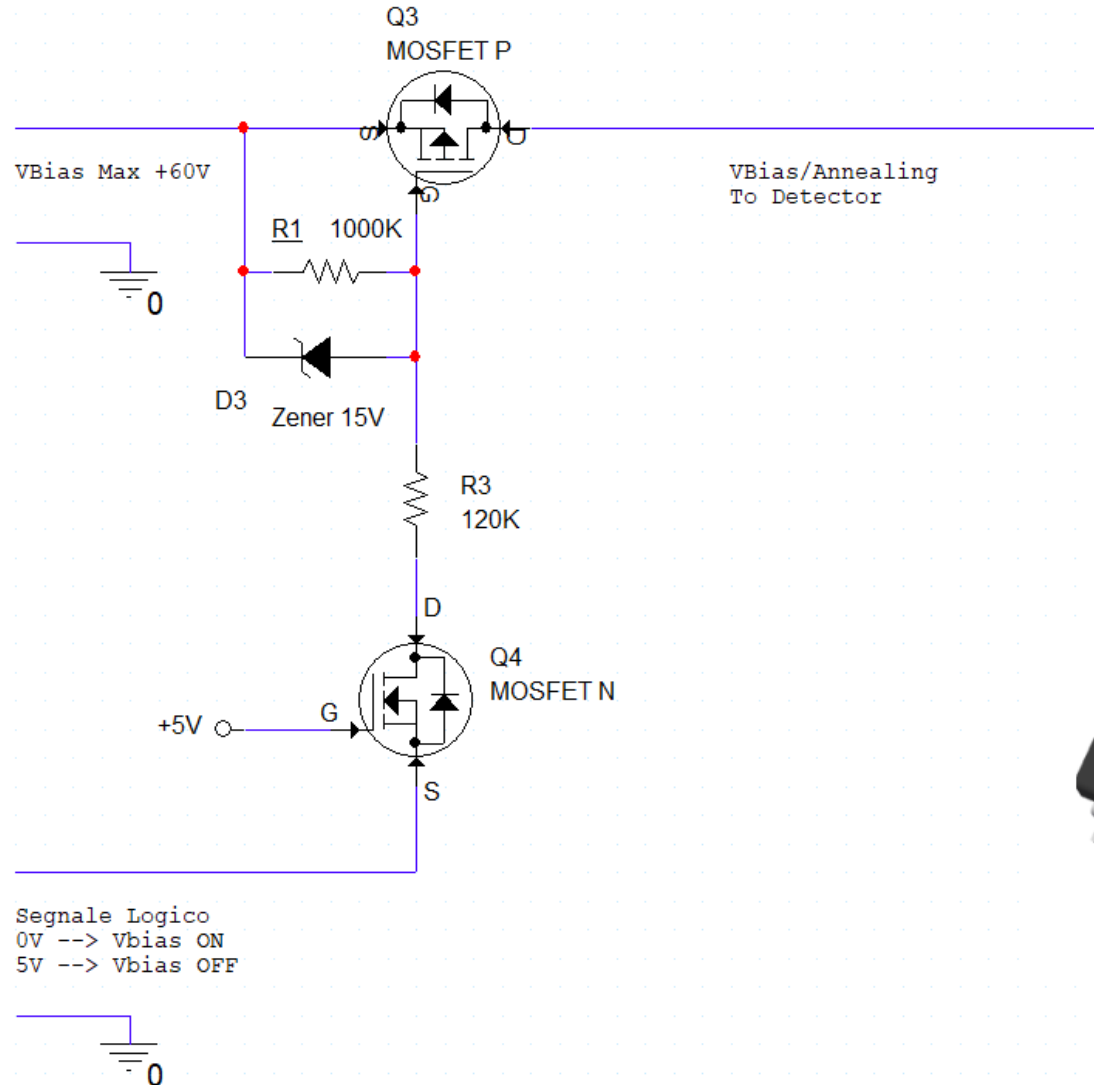


Misuratore Vbias Range +60V -12V



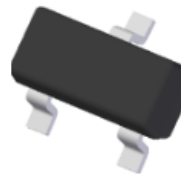
When disabled, the output assumes a high-impedance state. This architecture allows the TLV9002S and TLV9004S to operate as a gated amplifier (or to have the device output multiplexed onto a common analog output bus).

Mosfet di abilitazione V_{bias} e circuito di comando

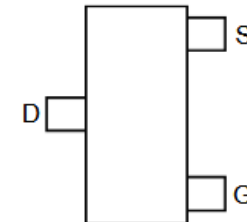
**ZXMP10A13F**

100V P-CHANNEL ENHANCEMENT MODE MOSFET

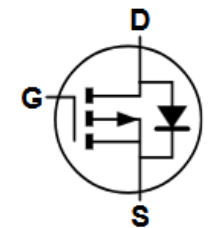
SOT-23



Top View

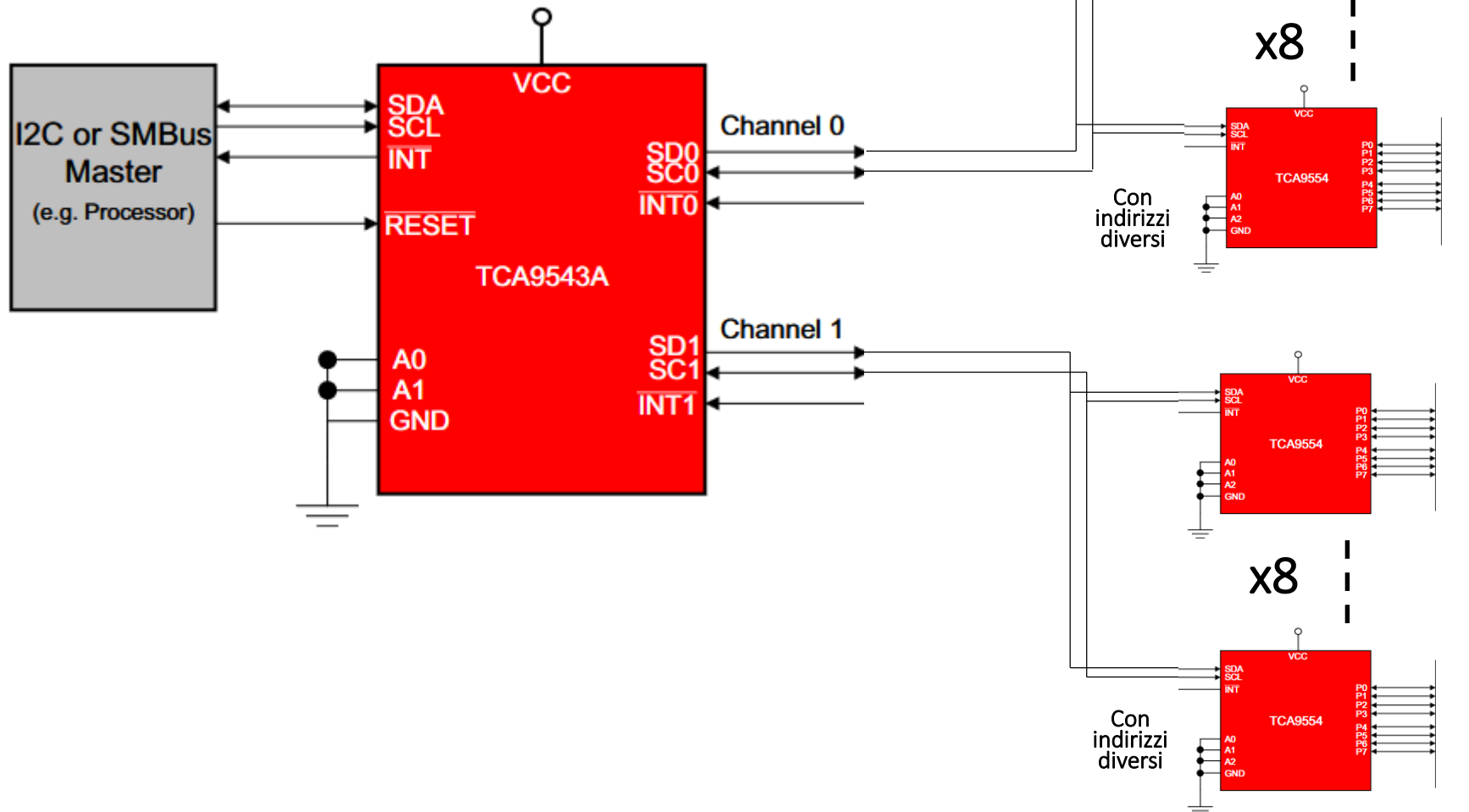


Top View Pin Out



Equivalent Circuit

Numero di linee di controllo nel caso 8 Settori e 8 PDU per MasterPanel

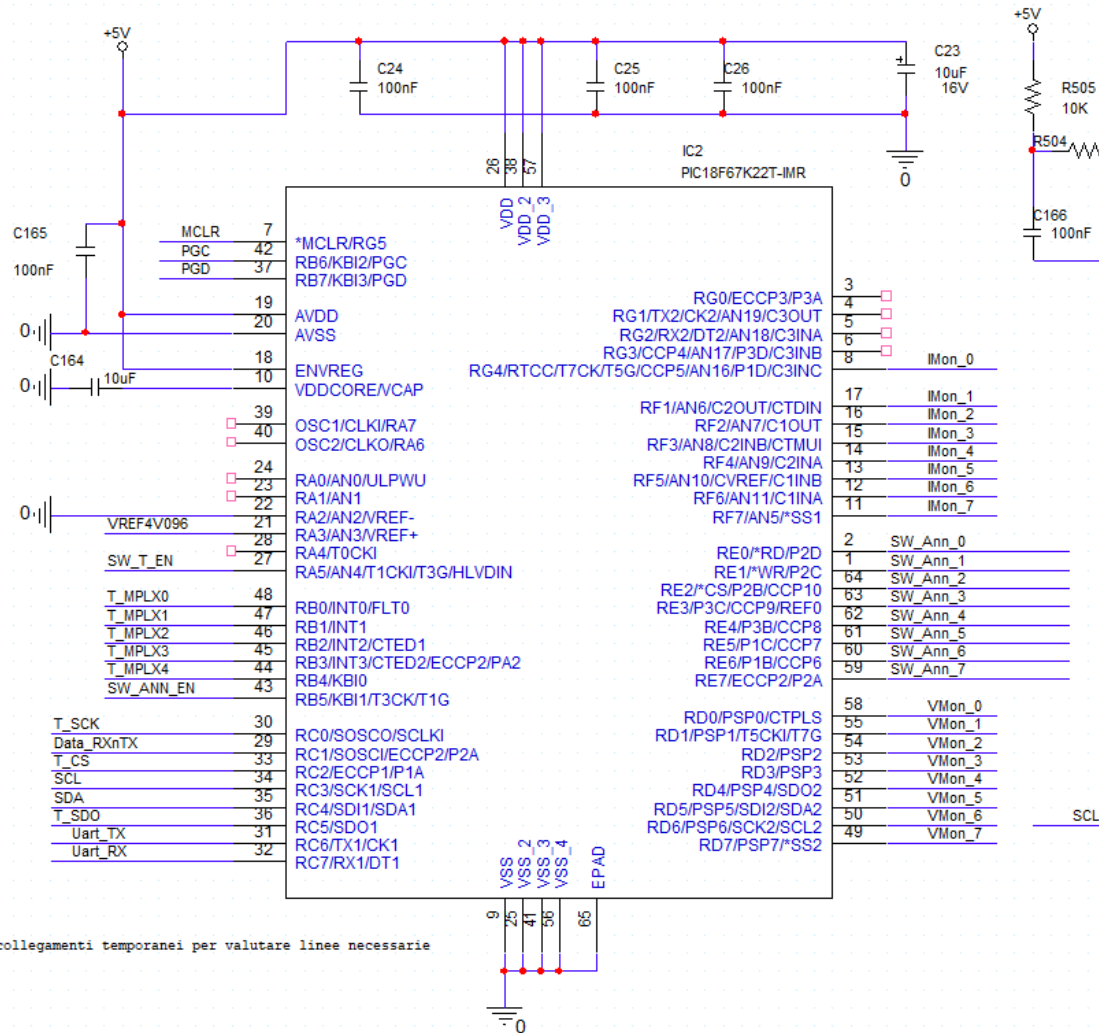


TCA9554 Low Voltage 8-Bit I2C
and SMBus Low-Power I/O
Expander

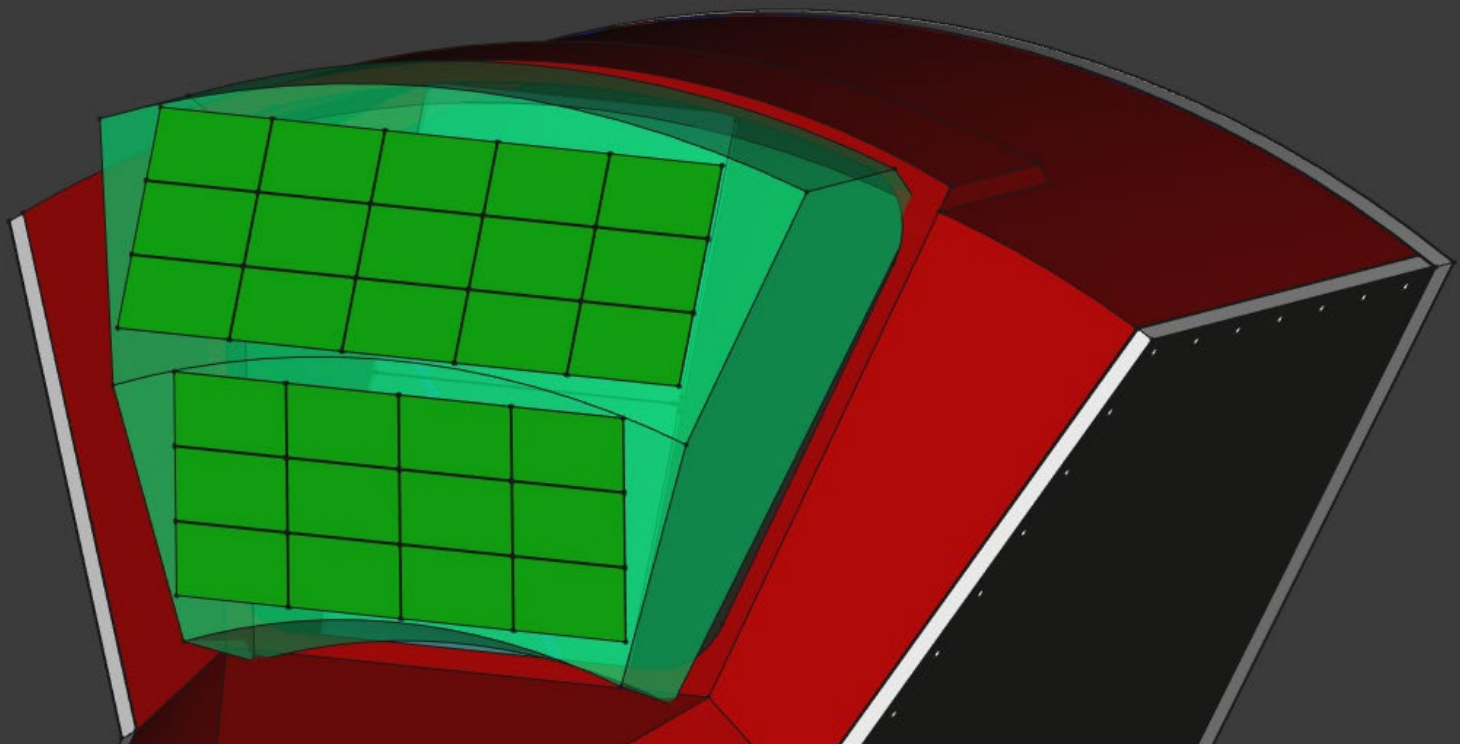
Ai 64 driver per switch
VBias

Ai 64 driver per switch
V Annealing

Risorse del uControllore



Segmenti	8				
PDU per MastrePanel	8				
Funzione	Numero linee	Componenti aggiuntivi	In caso di componenti esterni su bus I2C/ SPI	Componenti aggiuntivi	note
Uscite per Switch Vbias	64	0	2	8	Bus I2C con aggiunta di (segmenti*PDU/8) chips IO expander
Uscite per Switch V Annealing	64	0	0 se bus I2C gia' presente	8	Bus I2C con aggiunta di (segmenti*PDU/8) chips IO expander
Uscite per selezionare monitor di tensione	8	8	8	8	Con un ADC con "segmenti" ingressi e PDU linee di abilitazione Operazionali (I componenti esterni sono gli operazionali)
Ingressi per lettura Monitor di tensione	8	0	0 se bus I2C gia' presente	1	-ADC interno 12 bit -Bus I2C per ADC esterno 12Bit con 'segmenti' ingressi
Ingressi per lettura monitor di corrente Vbias	8	0	0 se bus I2C gia' presente	1	(ADC interno 12 bit/ Bus I2Cper ADC esterno 12Bit)
Uscita per regolazione DAC Vbias (esterno)	2	1	0 se bus I2C gia' presente	1	Bus I2C per DAC estrno 12Bit (DAC interno del uControllore e' 8 bit)
Selezione range misura temperatura	1	1	1	1	switch resistenza di misura
Uscite selezione Sensore di temperatura	5	5	5	5	Switch selezione NTC
Lettura sensore temperatura (ADC interno / esterno)	2	0	3	1	(ADC interno 12 bit/ Bus SPI per ADC esterno 18Bit)
BUS RS485	3	1	3	1	
TOTALE	160	16	17	35	



Area
disponibile per
le 26
MasterPanel

