

Specification Status: Released

ABSOLUTE MAXIMUM RATINGS (Note 1)

Parameter	Symbol	Value	Units
Max supply voltage	V_{IN}	+8	V
Fault flag voltage	V_{FLG}	+8	V
Fault flag current	I_{FLG}	50	μ A
Output voltage	V_{OUT}	+8	V
Output current	I_{OUT}	Internally limited	A
Control input	V_{EN}	- 0.3 to +12.0	V
Storage temperature	T_S	- 65 to +150	$^{\circ}$ C
Max lead temperature during soldering (5 sec.)		260	$^{\circ}$ C

OPERATING RATINGS (Note 3)

Parameter	Symbol	Value	Units
Supply voltage	V_{IN}	+3 to +5.5	V
Continuous output current (each output)	I_{OUT}	0.6	A
Ambient operating temperature	T_A	-40 to +85	$^{\circ}$ C
Thermal resistance (SO-8)	θ_{JA}	120	$^{\circ}$ C/W

ELECTRICAL CHARACTERISTICS ($V_{IN} = +5V$; $T_A = 25^{\circ}C$; unless noted.)

Power switch	Condition	Min	Typ	Max	Units
Switch Resistance	$V_{IN} = 5V, I_{OUT} = 500mA$		95	120	m Ω
	$V_{IN} = 3.3V, I_{OUT} = 500mA$		90	110	m Ω
Output Turn-On Time	$R_L = 10\Omega$ each output, consists of delay+rise time		3.6	12	ms
Output Turn-Off Time	$R_L = 10\Omega$ each output, consists of delay+fall time		2	40	μ s

Current limit	Condition	Min	Typ	Max	Units
Short-Circuit Current Limit	Each output (enable into 0 Ω load)	0.6	0.9	1.25	A
	Each output (3 Ω load hot-plugged into EN device), $V_{OUT} = 4.0V$	0.6	0.9	1.25	A

Enable input	Condition	Min	Typ	Max	Units
Enable Input Threshold	Low-to-high transition		1.5	2.4	V
	High-to-low transition, Note 4	0.8	1.5		V
Enable Input Current	$V_{EN} = 0V$ to 5.5V		0.01	1	μ A
Enable Input Capacitance				5	pF

Supply current	Condition	Min	Typ	Max	Units
Supply Current	Switch off, OUT = open; Note 4		0.5	5	μ A
	Switch on, OUT = open; Note 4		200	250	μ A
Output Leakage Current	Each output (output disabled)			10	μ A

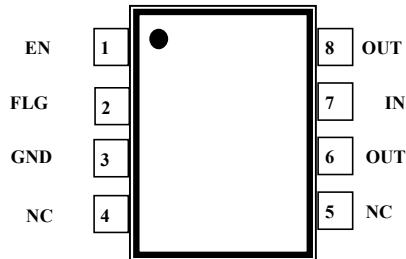
OT, UVLO/OVLO	Condition	Min	Typ	Max	Units
Overtemperature Shutdown Threshold	T_J increasing		135		C
	T_J decreasing		125		C
UVLO Threshold	$V_{IN} =$ increasing		2.5		V
	$V_{IN} =$ decreasing		2.3		V
OVLO Threshold	$V_{IN} =$ increasing		6.4		V
	$V_{IN} =$ decreasing		6.1		V

Error flag	Condition	Min	Typ	Max	Units
Error Flag Output Resistance	$V_{IN} = 5V, I_L = 10\mu A$, Note 5		50	100	Ω
	$V_{IN} = 3.3V, I_L = 10\mu A$, Note 5		80	100	Ω
Error flag output delay	Fault on overcurrent, Note 6	6	9	15	ms
Error Flag Off Current	$V_{FLAG} = 5V$		0.01	1	μ A

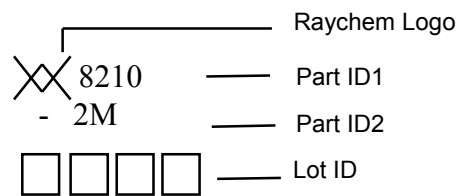
ELECTRICAL CHARACTERISTICS - NOTES

- Note 1.** Exceeding the absolute maximum rating may damage the device.
- Note 2.** Devices are ESD sensitive. Handling precautions recommended.
- Note 3.** The device is not designed to function outside its operating rating.
- Note 4.** Off is $\leq 0.8V$ and on is $\geq 2.4V$ for the RYC8210-1 and RYC8210-3. Off is $\geq 2.4V$ and on is $\leq 0.8V$ for the RYC8210-2 and RYC8210-4. The enable input has approximately 200mV of hysteresis. Pull-down/Pull-up resistors are on chip for "-1" and "-2" configurations.
- Note 5.** Pull-up resistors are on chip.
- Note 6.** No error flag out delay on UVLO, OVLO and thermal shut down.

PIN CONFIGURATION:

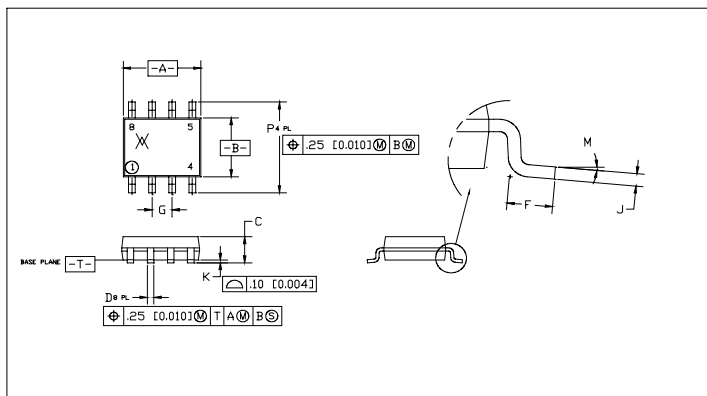


DEVICE MARKING:



PIN DESCRIPTIONS:

Pin Number	Pin Name	Pin Function
1	EN	Enable (Input): Logic-compatible enables input. High input > 2.4V. Low input <0.8V (-1, -3 active high, -2, -4 active low). Do not float.
2	FLG	Fault Flag (Output): Active-low open-drain output. Indicates overcurrent, UVLO, OVLO and thermal shutdown.
3	GND	Ground: Supply return
7	IN	Supply Input: Output MOSFET drain. Also supplies IC's internal circuitry. Connect to positive supply.
6 and 8	OUT	Switch Output: Output MOSFET source. Typically connect to switched side of load.
4 and 5	NC	No connections



DIMENSION	MIN	MAX	MIN	MAX
	mm	mm	inch	inch
A	4.80	5.00	0.190	0.197
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.013	0.020
F	0.40	1.27	0.016	0.050
G	1.27 BSC		0.050 BSC	
J	0.18	0.25	0.0075	0.010
K	0.10	0.25	0.004	0.010
M	0°	8°	0°	8°
P	5.80	6.20	0.228	0.244

MECHANICAL DIMENSIONS:

SO-8 PACKAGE NOTES:

1. Dimensions and tolerance per ANSI Y14.5M-1982.
2. Dimensions A and B are datums and T is a datum surface.
3. Controlling dimensions: Millimeters
4. Dimension A and B do not include mold flash. Mold flash shall not exceed 0.15mm [0.006] per side.
5. Dimension D does not include interlead flash. Interlead flash shall not exceed 0.25 mm [0.010].