

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	μA
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	°C
Max lead temperature during soldering (5 sec.)		260	°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	°C
Thermal resistance (SO-8)	θ J _A	120	°C/W

ELECTRICAL CHARACTERISTICS (V_{IN} = +5V; T_A = 25°C; unless noted.)

Power switch	Condition	Min	Typ	Max	Units
Switch Resistance	V _{IN} = 5V, I _{OUT} = 500mA, each switch		95	120	mΩ
	V _{IN} = 3.3V, I _{OUT} = 500mA, each switch		90	110	mΩ
Output Turn-On Time	R _L = 10Ω each output, consists of delay+rise time		3.6	12	ms
Output Turn-Off Time	R _L = 10Ω each output, consists of delay+fall time		2	40	μs

Current limit	Condition	Min	Typ	Max	Units
Short-Circuit Current Limit	Each output (enable into 0Ω load)	0.6	0.9	1.25	A
	Each output (3Ω 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	μA
Enable Input Capacitance				5	pF

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

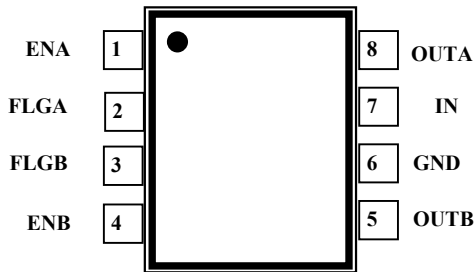
OT, UVLO/OVLO	Condition	Min	Typ	Max	Units
Overtemperature Shutdown Threshold	T _J increasing		135		C
	T _J decreasing		125		C
UVLO Threshold	V _{IN} = increasing		2.5		V
	V _{IN} = decreasing		2.3		V
OVLO Threshold	V _{IN} = increasing		6.4		V
	V _{IN} = decreasing		6.1		V

Error flag	Condition	Min	Typ	Max	Units
Error Flag Output Resistance	V _{IN} = 5V, I _L = 10μA, Note 5		50	100	Ω
	V _{IN} = 3.3V, I _L = 10μA, 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	μA

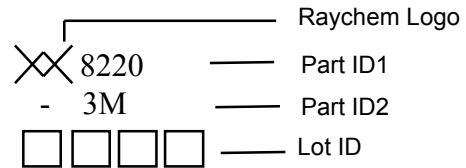
ELECTRICAL CHARACTERISTICS - NOTES

- 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 RYC8220-1 and RYC8220-3. Off is $\geq 2.4V$ and on is $\leq 0.8V$ for the RYC8220-2 and RYC8220-4. 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 shutdown.

PIN CONFIGURATION:

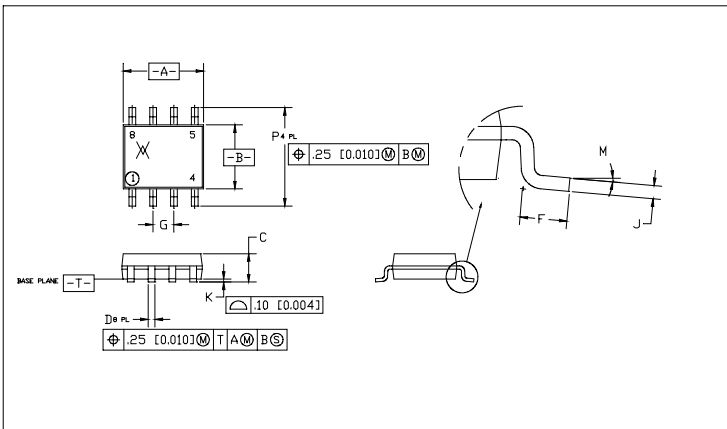


DEVICE MARKING:



PIN DESCRIPTIONS:

Pin Number	Pin Name	Pin Function
1, 4	EN	Enable (Input): Logic-compatible enable input. High input > 2.4V. Low input < 0.8V (-1, -3 active high, -2, -4 active low). Do not float.
2, 3	FLG	Fault Flag (Output): Active-low open-drain output. Indicates overcurrent, UVLO, OVLO and thermal shutdown.
6	GND	Ground: Supply return
7	IN	Supply Input: Output MOSFET drain. Also supplies IC's internal circuitry. Connect to positive supply.
5 and 8	OUT	Switch Output: Output MOSFET source. Typically connect to switched side of load.



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].