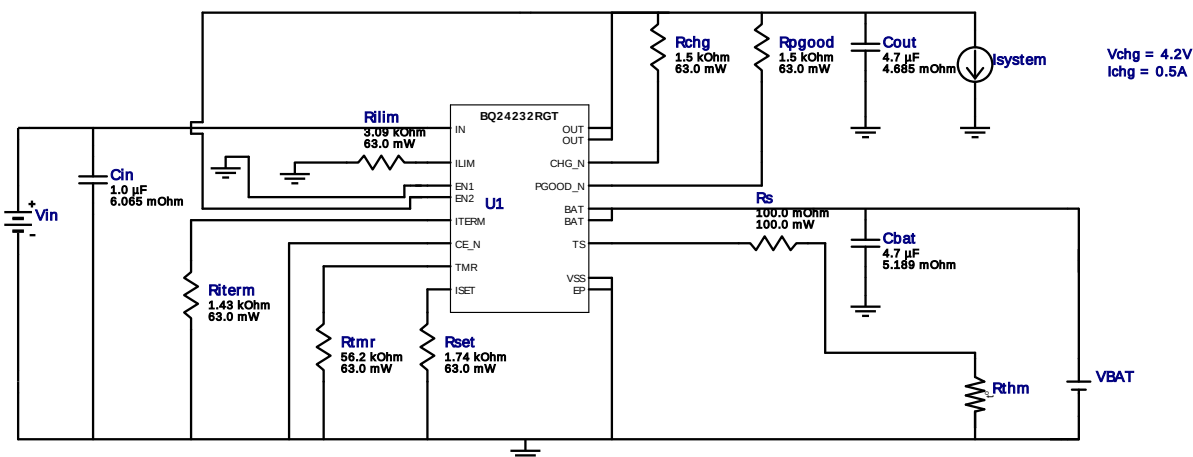


WEBENCH® Design Report

Design : 4354344/51 BQ24232RGTR
BQ24232RGTR 4.75V-5.25V to 4.20V @ 0.5A



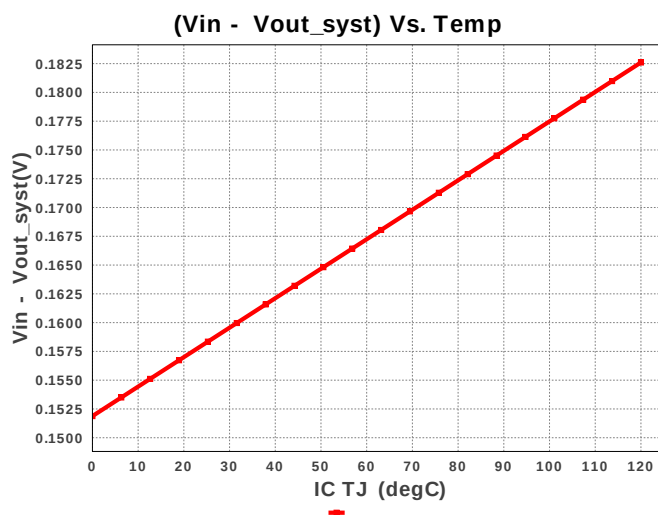
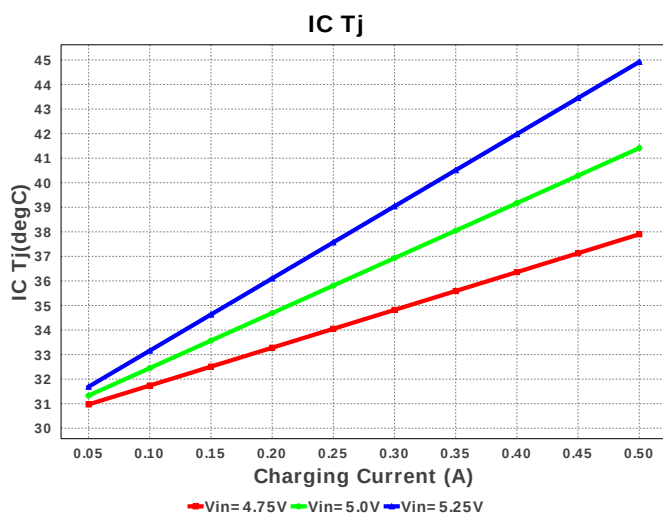
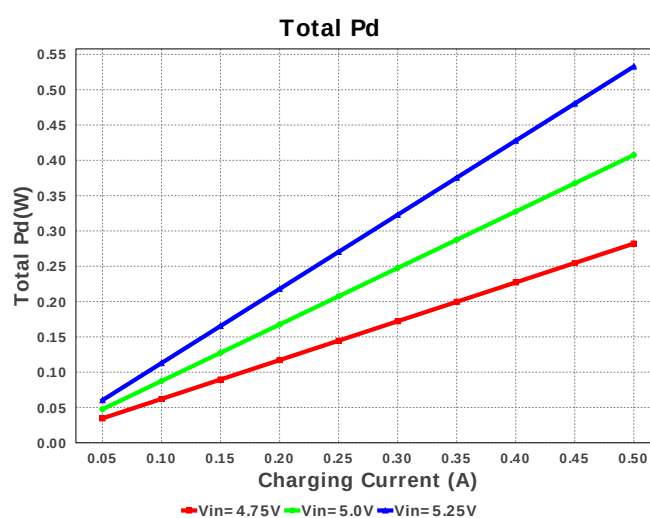
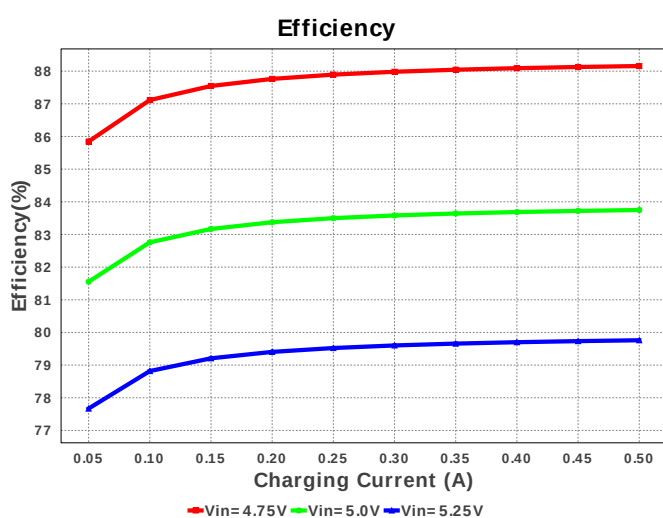
My Comments

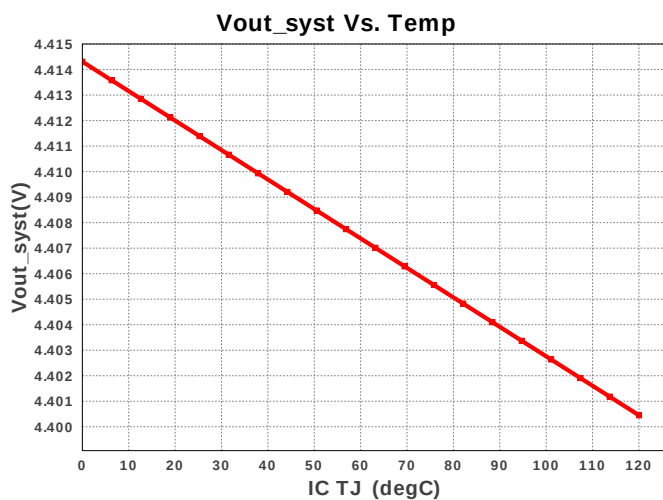
No comments

Electrical BOM

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Cbat	MuRata	GRM21BR61E475KA12L Series= X5R	Cap= 4.7 uF ESR= 5.189 mOhm VDC= 25.0 V IRMS= 2.03531 A	1	\$0.02	0805 7 mm ²
2.	Cin	MuRata	GRM188R61A105KA61D Series= X5R	Cap= 1.0 uF ESR= 6.065 mOhm VDC= 10.0 V IRMS= 1.30675 A	1	\$0.01	0603 5 mm ²
3.	Cout	MuRata	GRM21BR61A475KA73L Series= X5R	Cap= 4.7 uF ESR= 4.685 mOhm VDC= 10.0 V IRMS= 1.84175 A	1	\$0.03	0805 7 mm ²
4.	Rchg	Vishay-Dale	CRCW04021K50FKED Series= CRCW..e3	Res= 1.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
5.	Rlim	Vishay-Dale	CRCW04023K09FKED Series= CRCW..e3	Res= 3.09 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
6.	Rterm	Vishay-Dale	CRCW04021K43FKED Series= CRCW..e3	Res= 1.43 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
7.	Rpgood	Vishay-Dale	CRCW04021K50FKED Series= CRCW..e3	Res= 1.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²
8.	Rs	Panasonic	ERJ-3RSFR10V Series= ERJ-3R	Res= 100.0 mOhm Power= 100.0 mW Tolerance= 1.0%	1	\$0.03	0603 5 mm ²
9.	Rset	Vishay-Dale	CRCW04021K74FKED Series= CRCW..e3	Res= 1.74 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	0402 3 mm ²

#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
10.	Rthm	MuRata	NCP15XH103E03RC Series= NCP15	Thermistor	1	\$0.03	 0402 3 mm²
11.	Rtmr	Vishay-Dale	CRCW040256K2FKED Series= CRCW..e3	Res= 56.2 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
12.	U1	Texas Instruments	BQ24232RGTR	Switcher	1	\$1.00	 RGT0016C 25 mm²





Operating Values

#	Name	Value	Category	Description
1.	BOM Count	12	General	Total Design BOM count
2.	Cell Capacity	2.0 000mAh	General	Cell Capacity
3.	Cells in Parallel	1.0	General	Cells in Parallel
4.	Cells in Series	1.0	General	Cells in Series
5.	FootPrint	69.0 mm ²	General	Total Foot Print Area of BOM components
6.	Total BOM	\$1.18	General	Total BOM Cost
7.	Total Battery Capacity	500.0 m000mAh	General	Total Battery Capacity
8.	IBAT_SHORT	7.5 mA	Op_Point	Source current for BAT pin short-circuit detection
9.	ICThetaJA Effective	28.0 degC/W	Op_Point	Effective IC Junction-to-Ambient Thermal Resistance
10.	Ichg_OP	500.0 mA	Op_Point	Battery charging current
11.	Ichg_Sch	500.0 mA	Op_Point	Charge current selected
12.	IinMax_Sch	500.0 mA	Op_Point	Maximum input current selected
13.	Iprecharge	58.667 mA	Op_Point	Pre-charge Current
14.	Itermination	24.655 mA	Op_Point	Termination comparator threshold for termination detection
15.	VBAT_LOWV	3.0 V	Op_Point	Pre-charge to fast-charge transition threshold
16.	VBAT_SHORT	1.8 V	Op_Point	BAT pin short-circuit detection threshold
17.	Vchg_OP	4.2 V	Op_Point	Battery output voltage
18.	Vchg_Sch	4.2 V	Op_Point	Charge voltage selected
19.	Efficiency	79.761 %	Op_point	Steady state efficiency
20.	IC TJ	43.52 degC	Op_point	IC junction temperature
21.	VIN_OP	5.25 V	Op_point	Vin operating point
22.	Total Pd	532.875 mW	Power	Total Power Dissipation

Design Inputs

#	Name	Value	Description
1.	IchgMax	500.0 m	Ichg
2.	IinMax	500.0 m	IinMax
3.	Vchg	4.2	Vchg
4.	VinMax	5.25	Maximum input voltage
5.	VinMin	4.75	Minimum input voltage
6.	base_pn	BQ24232	Base Product Number
7.	source	DC	Input Source Type
8.	Ta	30.0	Ambient temperature

Design Assistance

1. **BQ24232** Product Folder : <http://www.ti.com/product/bq24232> : contains the data sheet and other resources.

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