



MASTERFLUX

## SIERRA03-0434Y3

### Brushless DC Variable Speed Compressor Technical Data Sheet

#### General Information

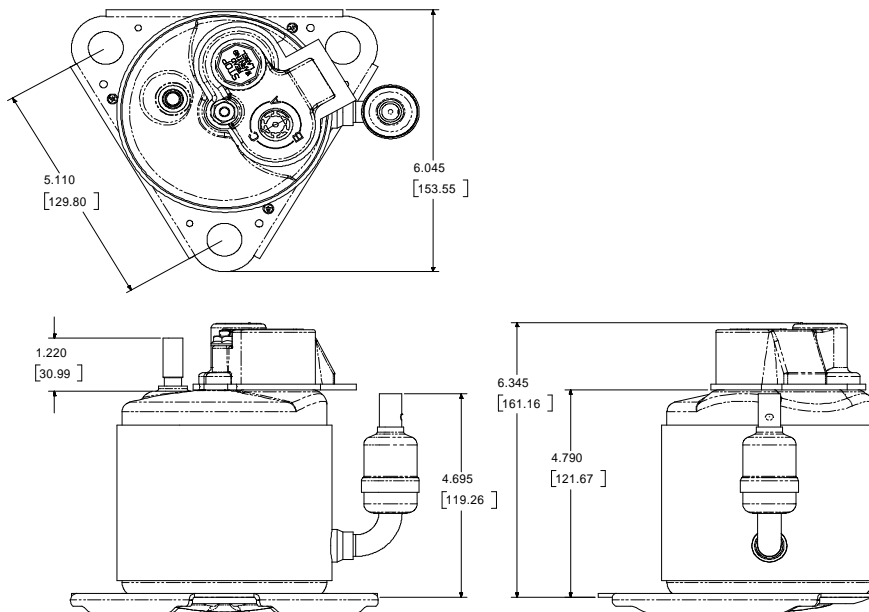
Compressor Part Number - Standard Accumulator (14.4 cc)  
Sales Compressor Drawing - Standard Accumulator  
Sales Controller Drawing  
Wiring Diagram

SIERRA00005  
DCMX01-001  
DGMX002  
DEMX04

#### Application Information

Application	HBP, A/C
Refrigerant	R134a
Voltage Range	22-50V DC
Evaporator Temperature Range	-23.3° C to 12.8° C (-10° F to 55° F)
Condenser Temperature Range	26.7° C to 65.6° C (80° F to 150° F)
Maximum Discharge Temperature	130° C (265° F)
Maximum Compression Ratio	8:1

#### Compressor Dimensions



the Sierra



MASTERFLUX

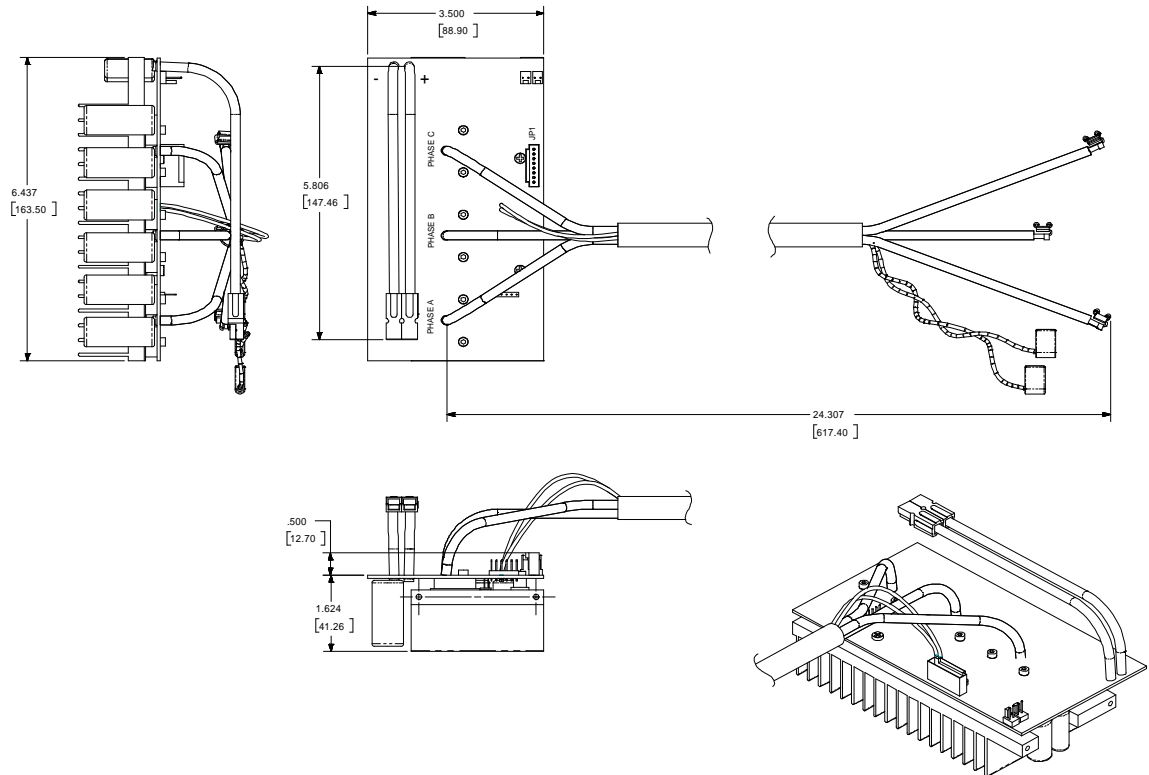
## SIERRA03-0434Y3

### Brushless DC Variable Speed Compressor Technical Data Sheet

#### Controller Features

- Over/under voltage protection
- Compressor thermal monitoring
- Controller thermal monitoring
- Locked rotor protection

#### Controller Dimensions



the Sierra

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (24V)**
**SIERRA03-0434Y3**
**Capacity (54.4° C Condenser) watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	207	225	249	278	313	353	399	451	508	571
2300	281	307	339	378	424	477	537	604	677	757
2800	353	378	412	456	510	574	648	731	825	928
3200	397	431	476	531	595	669	754	848	952	1066

**Power Consumption (54.4° C Condenser) watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	182	190	197	203	208	213	217	220	222	223
2300	204	211	217	224	230	237	243	249	256	262
2800	231	240	249	258	267	277	286	296	306	317
3200	255	271	286	299	312	324	335	345	354	362

**Current (54.4° C Condenser) amp**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	7.58	7.91	8.20	8.46	8.69	8.88	9.04	9.16	9.25	9.31
2300	8.50	8.78	9.05	9.33	9.60	9.86	10.13	10.40	10.66	10.92
2800	9.63	9.99	10.36	10.74	11.13	11.52	11.93	12.34	12.77	13.20
3200	10.64	11.29	11.90	12.47	13.01	13.50	13.96	14.38	14.75	15.09

**COP (54.4° C Condenser) watt/watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	1.14	1.18	1.26	1.37	1.50	1.66	1.84	2.05	2.29	2.56
2300	1.38	1.46	1.56	1.69	1.84	2.02	2.21	2.42	2.65	2.89
2800	1.53	1.58	1.66	1.77	1.91	2.08	2.26	2.47	2.69	2.93
3200	1.55	1.59	1.67	1.77	1.91	2.07	2.25	2.46	2.69	2.94

**Mass Flow (54.4° C Condenser) kg/hr**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	5.39	5.82	6.37	7.05	7.85	8.77	9.81	10.98	12.26	13.68
2300	7.26	7.89	8.67	9.59	10.65	11.85	13.20	14.69	16.32	18.09
2800	8.86	9.80	10.88	12.12	13.49	15.01	16.68	18.49	20.45	22.55
3200	10.08	11.01	12.14	13.46	14.97	16.68	18.59	20.69	22.99	25.48

\* all data points are with 11.1° C superheat and 8.3° C subcooling

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (48V)**
**SIERRA03-0434Y3**
**Capacity (54.4° C Condenser) watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
3700	459	513	577	651	736	830	935	1051	1176	1312
4500	603	655	721	802	899	1010	1135	1276	1432	1602
5300	700	767	852	953	1071	1207	1359	1528	1713	1916
6100	888	940	1011	1100	1208	1334	1479	1641	1823	2022

**Power Consumption (54.4° C Condenser) watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
3700	339	379	411	436	454	465	468	464	453	435
4500	453	480	504	523	539	551	559	563	563	559
5300	530	558	585	611	634	655	674	691	707	720
6100	648	682	712	736	756	770	779	783	783	777

**Current (54.4° C Condenser) amp**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
3700	7.06	7.89	8.57	9.09	9.46	9.68	9.76	9.67	9.44	9.06
4500	9.43	10.00	10.49	10.90	11.23	11.48	11.64	11.73	11.73	11.65
5300	11.03	11.63	12.20	12.72	13.20	13.64	14.04	14.40	14.72	15.00
6100	13.49	14.21	14.83	15.34	15.74	16.04	16.23	16.32	16.30	16.18

**COP (54.4° C Condenser) watt/watt**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
3700	1.35	1.35	1.40	1.49	1.62	1.79	2.00	2.26	2.60	3.02
4500	1.33	1.36	1.43	1.53	1.67	1.83	2.03	2.27	2.54	2.87
5300	1.32	1.37	1.45	1.56	1.69	1.84	2.02	2.21	2.42	2.66
6100	1.37	1.38	1.42	1.49	1.60	1.73	1.90	2.10	2.33	2.60

**Mass Flow (54.4° C Condenser) kg/hr**

rpm	Evaporator Temperature (° C)									
	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
3700	11.96	13.34	14.91	16.67	18.64	20.79	23.15	25.69	28.43	31.37
4500	16.32	17.39	18.81	20.58	22.69	25.14	27.94	31.09	34.58	38.41
5300	19.52	20.67	22.26	24.28	26.73	29.62	32.95	36.71	40.90	45.54
6100	21.63	22.83	24.44	26.45	28.88	31.71	34.95	38.60	42.66	47.12

\* all data points are with 11.1° C superheat and 8.3° C subcooling

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (24V)**

**SIERRA03-0434Y3**

<b>Capacity (130° F Condenser)</b>										<b>BTU/hr</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>1800</b>	705	768	849	949	1068	1207	1364	1540	1735	1950
<b>2300</b>	960	1047	1158	1291	1449	1629	1834	2061	2312	2587
<b>2800</b>	1206	1290	1407	1559	1743	1961	2213	2498	2817	3169
<b>3200</b>	1355	1473	1626	1812	2032	2286	2574	2895	3251	3640

<b>Power Consumption (130° F Condenser)</b>										<b>watt</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>1800</b>	182	190	197	203	208	213	217	220	222	223
<b>2300</b>	204	211	217	224	230	237	243	249	256	262
<b>2800</b>	231	240	249	258	267	277	286	296	306	317
<b>3200</b>	255	271	286	299	312	324	335	345	354	362

<b>Current (130° F Condenser)</b>										<b>amp</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>1800</b>	7.58	7.91	8.20	8.46	8.69	8.88	9.04	9.16	9.25	9.31
<b>2300</b>	8.50	8.78	9.05	9.33	9.60	9.86	10.13	10.40	10.66	10.92
<b>2800</b>	9.63	9.99	10.36	10.74	11.13	11.52	11.93	12.34	12.77	13.20
<b>3200</b>	10.64	11.29	11.90	12.47	13.01	13.50	13.96	14.38	14.75	15.09

<b>EER (130° F Condenser)</b>										<b>BTU/h/watt</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>1800</b>	3.88	4.05	4.31	4.67	5.12	5.66	6.29	7.01	7.82	8.73
<b>2300</b>	4.71	4.97	5.33	5.77	6.29	6.88	7.54	8.26	9.04	9.87
<b>2800</b>	5.22	5.38	5.66	6.05	6.53	7.09	7.73	8.43	9.19	10.00
<b>3200</b>	5.31	5.44	5.69	6.05	6.51	7.05	7.68	8.39	9.18	10.05

<b>Mass Flow (130° F Condenser)</b>										<b>lb/hr</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>1800</b>	11.88	12.83	14.05	15.54	17.30	19.33	21.63	24.20	27.04	30.15
<b>2300</b>	16.01	17.40	19.11	21.13	23.47	26.13	29.09	32.38	35.98	39.89
<b>2800</b>	19.53	21.60	24.00	26.71	29.74	33.10	36.77	40.76	45.08	49.71
<b>3200</b>	22.22	24.27	26.76	29.67	33.01	36.78	40.98	45.61	50.67	56.17

\* all data points are with 20° F superheat and 15° F subcooling

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (48V)**
**SIERRA03-0434Y3**

<b>Capacity (130° F Condenser)</b>										<b>BTU/hr</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>3700</b>	1567	1751	1970	2224	2512	2836	3195	3588	4017	4480
<b>4500</b>	2060	2236	2463	2740	3069	3448	3878	4359	4890	5472
<b>5300</b>	2390	2620	2909	3255	3659	4120	4640	5217	5852	6544
<b>6100</b>	3032	3211	3453	3758	4126	4556	5050	5606	6225	6907

<b>Power Consumption (130° F Condenser)</b>										<b>watt</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>3700</b>	339	379	411	436	454	465	468	464	453	435
<b>4500</b>	453	480	504	523	539	551	559	563	563	559
<b>5300</b>	530	558	585	611	634	655	674	691	707	720
<b>6100</b>	648	682	712	736	756	770	779	783	783	777

<b>Current (130° F Condenser)</b>										<b>amp</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>3700</b>	7.06	7.89	8.57	9.09	9.46	9.68	9.76	9.67	9.44	9.06
<b>4500</b>	9.43	10.00	10.49	10.90	11.23	11.48	11.64	11.73	11.73	11.65
<b>5300</b>	11.03	11.63	12.20	12.72	13.20	13.64	14.04	14.40	14.72	15.00
<b>6100</b>	13.49	14.21	14.83	15.34	15.74	16.04	16.23	16.32	16.30	16.18

<b>EER (130° F Condenser)</b>										<b>BTU/h/watt</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>3700</b>	4.62	4.62	4.79	5.10	5.53	6.10	6.82	7.73	8.86	10.30
<b>4500</b>	4.55	4.66	4.89	5.24	5.69	6.26	6.94	7.74	8.69	9.79
<b>5300</b>	4.51	4.69	4.97	5.33	5.77	6.29	6.88	7.55	8.28	9.09
<b>6100</b>	4.68	4.71	4.85	5.10	5.46	5.92	6.48	7.16	7.95	8.89

<b>Mass Flow (130° F Condenser)</b>										<b>lb/hr</b>
	<b>Evaporator Temperature (° F)</b>									
<b>rpm</b>	<b>10.0</b>	<b>15.0</b>	<b>20.0</b>	<b>25.0</b>	<b>30.0</b>	<b>35.0</b>	<b>40.0</b>	<b>45.0</b>	<b>50.0</b>	<b>55.0</b>
<b>3700</b>	26.37	29.40	32.87	36.76	41.09	45.84	51.03	56.64	62.69	69.16
<b>4500</b>	35.98	38.35	41.48	45.37	50.02	55.43	61.60	68.54	76.23	84.68
<b>5300</b>	43.04	45.58	49.07	53.52	58.93	65.30	72.63	80.92	90.18	100.39
<b>6100</b>	47.68	50.33	53.87	58.32	63.66	69.91	77.05	85.10	94.05	103.89

\* all data points are with 20° F superheat and 15° F subcooling