



MASTERFLUX

## SIERRA03-0982Y3

### Brushless DC Variable Speed Compressor Technical Data Sheet

#### General Information

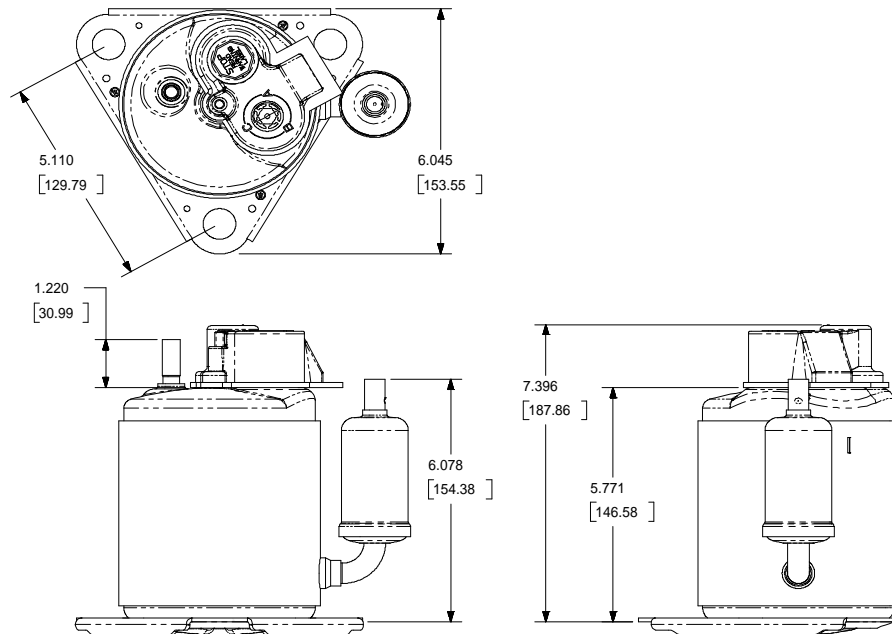
Compressor Part Number - Accumulator (81.6 cc)  
Sales Compressor Drawing  
Sales Controller Drawing  
Wiring Diagram

SIERRA00010  
DCMX01-004  
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

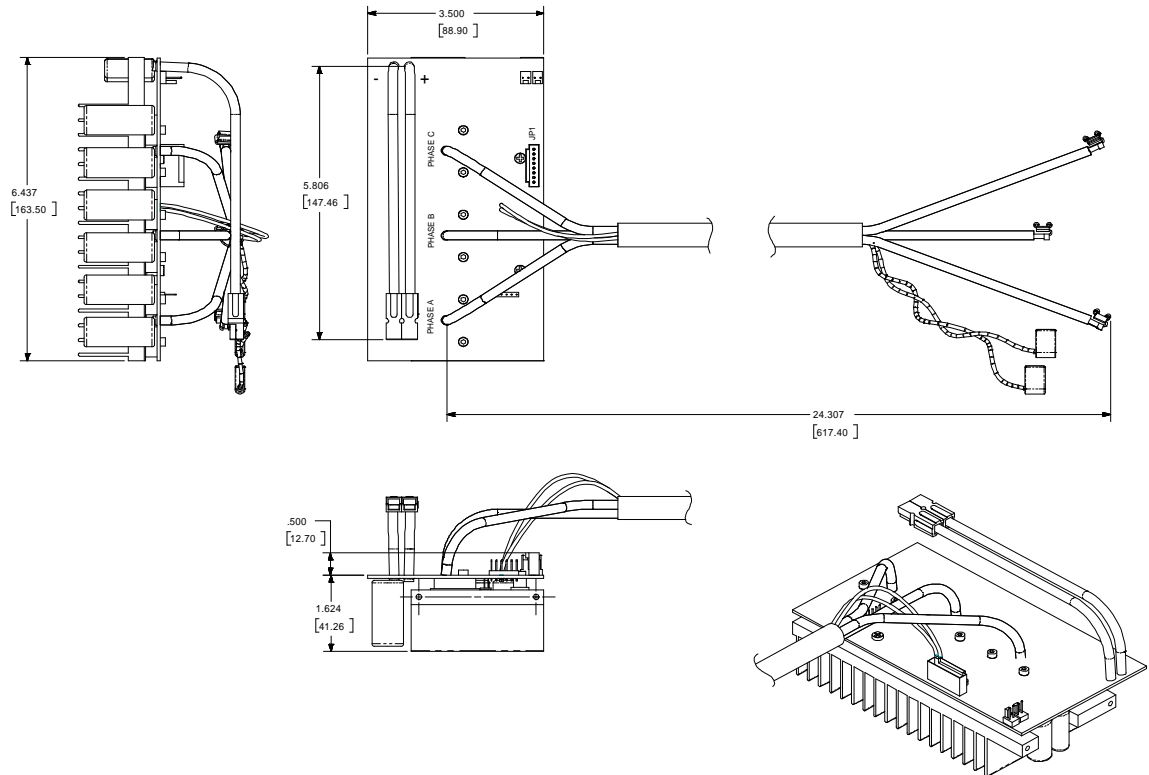
## SIERRA03-0982Y3

### 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)**
**SIERRA03-0982Y3**
**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	471	512	567	634	713	805	910	1028	1159	1302
2300	641	699	773	862	967	1088	1224	1376	1544	1727
2800	805	861	940	1041	1164	1309	1477	1668	1881	2116
3700	1112	1210	1335	1488	1669	1877	2114	2378	2669	2989

**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	340	355	368	380	390	398	405	411	415	418
2300	381	394	406	418	431	443	455	466	478	490
2800	432	448	465	482	499	517	535	554	573	592
3700	601	637	672	704	735	763	788	812	833	852

**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	14.17	14.78	15.33	15.82	16.24	16.60	16.89	17.13	17.29	17.40
2300	15.89	16.41	16.92	17.43	17.94	18.44	18.94	19.44	19.92	20.41
2800	18.01	18.68	19.37	20.08	20.80	21.54	22.30	23.07	23.87	24.68
3700	25.03	26.56	28.00	29.35	30.61	31.77	32.84	33.82	34.71	35.51

**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	1.38	1.44	1.54	1.67	1.83	2.02	2.25	2.50	2.79	3.12
2300	1.68	1.78	1.90	2.06	2.25	2.46	2.69	2.95	3.23	3.53
2800	1.86	1.92	2.02	2.16	2.33	2.53	2.76	3.01	3.28	3.57
3700	1.85	1.90	1.99	2.11	2.27	2.46	2.68	2.93	3.20	3.51

**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	11.31	12.22	13.38	14.80	16.48	18.41	20.60	23.05	25.76	28.72
2300	15.25	16.58	18.20	20.13	22.36	24.89	27.71	30.84	34.27	38.00
2800	18.60	20.58	22.86	25.44	28.33	31.53	35.02	38.83	42.94	47.35
3700	25.40	27.75	30.58	33.91	37.73	42.04	46.84	52.14	57.92	64.20

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

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (48V)**
**SIERRA03-0982Y3**
**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	1110	1241	1396	1575	1780	2009	2263	2542	2845	3174
4500	1459	1584	1745	1941	2174	2443	2747	3088	3464	3877
5300	1693	1856	2061	2306	2592	2919	3287	3696	4145	4636
6500	2448	2593	2789	3035	3332	3680	4078	4527	5027	5578

**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	703	786	853	905	943	965	972	964	940	902
4500	939	996	1045	1086	1119	1143	1160	1168	1168	1160
5300	1099	1159	1215	1267	1315	1359	1399	1435	1466	1494
6500	1596	1681	1754	1814	1862	1897	1920	1931	1928	1914

**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	14.66	16.37	17.77	18.86	19.64	20.10	20.24	20.07	19.59	18.80
4500	19.57	20.75	21.77	22.62	23.31	23.82	24.16	24.33	24.34	24.18
5300	22.89	24.14	25.31	26.39	27.39	28.31	29.14	29.89	30.55	31.13
6500	33.24	35.02	36.54	37.80	38.79	39.53	40.00	40.22	40.18	39.87

**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	1.58	1.58	1.64	1.74	1.89	2.08	2.33	2.64	3.03	3.52
4500	1.55	1.59	1.67	1.79	1.94	2.14	2.37	2.64	2.97	3.34
5300	1.54	1.60	1.70	1.82	1.97	2.15	2.35	2.58	2.83	3.10
6500	1.53	1.54	1.59	1.67	1.79	1.94	2.12	2.34	2.61	2.91

**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	26.04	29.04	32.46	36.31	40.58	45.28	50.40	55.95	61.92	68.31
4500	35.53	37.88	40.97	44.81	49.41	54.75	60.85	67.70	75.29	83.64
5300	42.52	45.02	48.47	52.86	58.21	64.50	71.74	79.93	89.07	99.16
6500	56.14	59.25	63.43	68.66	74.96	82.31	90.72	100.20	110.73	122.32

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

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (24V)**
**SIERRA03-0982Y3**

<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>	1608	1750	1935	2164	2436	2751	3109	3511	3957	4445
<b>2300</b>	2190	2388	2639	2944	3303	3715	4180	4699	5272	5898
<b>2800</b>	2749	2941	3209	3554	3975	4472	5046	5696	6422	7225
<b>3700</b>	3799	4132	4560	5082	5700	6412	7218	8120	9116	10207

<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>	340	355	368	380	390	398	405	411	415	418
<b>2300</b>	381	394	406	418	431	443	455	466	478	490
<b>2800</b>	432	448	465	482	499	517	535	554	573	592
<b>3700</b>	601	637	672	704	735	763	788	812	833	852

<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>	14.17	14.78	15.33	15.82	16.24	16.60	16.89	17.13	17.29	17.40
<b>2300</b>	15.89	16.41	16.92	17.43	17.94	18.44	18.94	19.44	19.92	20.41
<b>2800</b>	18.01	18.68	19.37	20.08	20.80	21.54	22.30	23.07	23.87	24.68
<b>3700</b>	25.03	26.56	28.00	29.35	30.61	31.77	32.84	33.82	34.71	35.51

<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>	4.73	4.93	5.26	5.70	6.25	6.91	7.67	8.54	9.53	10.65
<b>2300</b>	5.74	6.06	6.50	7.04	7.67	8.39	9.20	10.07	11.02	12.04
<b>2800</b>	6.36	6.56	6.90	7.38	7.96	8.65	9.43	10.29	11.21	12.20
<b>3700</b>	6.32	6.48	6.78	7.21	7.76	8.41	9.16	10.00	10.94	11.98

<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>	24.94	26.93	29.50	32.63	36.32	40.59	45.42	50.82	56.78	63.31
<b>2300</b>	33.62	36.54	40.13	44.38	49.29	54.86	61.10	67.99	75.55	83.77
<b>2800</b>	41.02	45.37	50.39	56.09	62.46	69.50	77.21	85.60	94.66	104.39
<b>3700</b>	56.00	61.17	67.42	74.76	83.18	92.68	103.27	114.94	127.70	141.54

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

**MASTERFLUX COMPRESSOR PERFORMANCE CHART (48V)**
**SIERRA03-0982Y3**

<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>	3792	4237	4766	5380	6078	6861	7729	8681	9717	10839
<b>4500</b>	4983	5409	5958	6630	7424	8342	9382	10545	11831	13239
<b>5300</b>	5781	6339	7037	7875	8852	9969	11225	12621	14157	15832
<b>6500</b>	8362	8856	9524	10365	11379	12566	13927	15461	17168	19049

<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>	703	786	853	905	943	965	972	964	940	902
<b>4500</b>	939	996	1045	1086	1119	1143	1160	1168	1168	1160
<b>5300</b>	1099	1159	1215	1267	1315	1359	1399	1435	1466	1494
<b>6500</b>	1596	1681	1754	1814	1862	1897	1920	1931	1928	1914

<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>	14.66	16.37	17.77	18.86	19.64	20.10	20.24	20.07	19.59	18.80
<b>4500</b>	19.57	20.75	21.77	22.62	23.31	23.82	24.16	24.33	24.34	24.18
<b>5300</b>	22.89	24.14	25.31	26.39	27.39	28.31	29.14	29.89	30.55	31.13
<b>6500</b>	33.24	35.02	36.54	37.80	38.79	39.53	40.00	40.22	40.18	39.87

<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>	5.39	5.39	5.59	5.94	6.45	7.11	7.95	9.01	10.33	12.01
<b>4500</b>	5.31	5.43	5.70	6.10	6.64	7.30	8.09	9.03	10.13	11.41
<b>5300</b>	5.26	5.47	5.79	6.22	6.73	7.34	8.03	8.80	9.65	10.59
<b>6500</b>	5.24	5.27	5.43	5.71	6.11	6.62	7.25	8.01	8.90	9.95

<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>	57.41	64.02	71.57	80.05	89.47	99.82	111.11	123.34	136.51	150.60
<b>4500</b>	78.34	83.50	90.32	98.80	108.93	120.71	134.15	149.24	165.99	184.40
<b>5300</b>	93.73	99.25	106.85	116.54	128.33	142.20	158.17	176.22	196.37	218.60
<b>6500</b>	123.77	130.63	139.84	151.37	165.25	181.46	200.01	220.89	244.11	269.67

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