



MASTERFLUX

SIERRA05-0982Y3

Brushless DC Variable Speed Compressor Technical Data Sheet

General Information

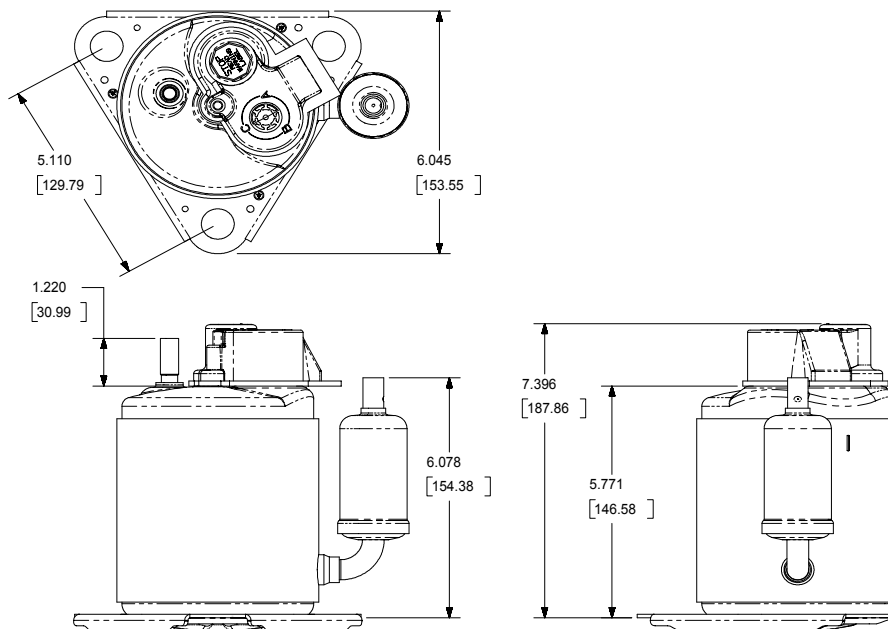
Compressor Part Number - Accumulator (81.6 cc)
Sales Compressor Drawing
Sales Controller Drawing
Wiring Diagram

SIERRA00012
DCMX01-004
DGMX007
DEMX05

Application Information

Application	HBP, A/C
Refrigerant	R134a
Voltage Range	135-315V 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

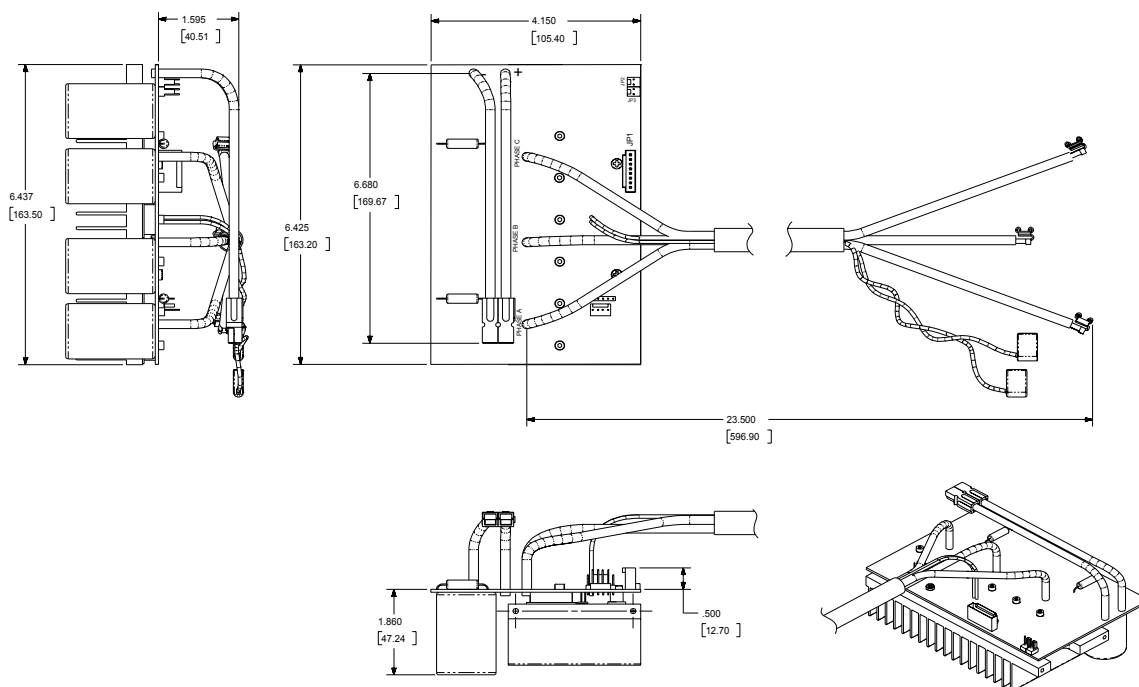
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Controller Features

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

Controller Dimensions



the Sierra

MASTERFLUX COMPRESSOR PERFORMANCE CHART (100V)
SIERRA05-0982Y3

Capacity (54.4° C Condenser)										watt
Evaporator Temperature (° C)										
rpm	-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
3500	1047	1139	1257	1401	1571	1767	1990	2238	2513	2813

Power Consumption (54.4° C Condenser)										watt
Evaporator Temperature (° C)										
rpm	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	360	376	390	402	413	422	430	435	440	442
2300	404	417	430	443	456	469	482	494	507	519
2800	458	475	492	510	529	548	567	587	607	627
3500	599	636	670	702	732	760	786	809	831	850

Current (54.4° C Condenser)										amp
Evaporator Temperature (° C)										
rpm	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	3.60	3.76	3.90	4.02	4.13	4.22	4.30	4.35	4.40	4.42
2300	4.04	4.17	4.30	4.43	4.56	4.69	4.82	4.94	5.07	5.19
2800	4.58	4.75	4.92	5.10	5.29	5.48	5.67	5.87	6.07	6.27
3500	5.99	6.36	6.70	7.02	7.32	7.60	7.86	8.09	8.31	8.50

COP (54.4° C Condenser)										watt/watt
Evaporator Temperature (° C)										
rpm	-12.0	-9.4	-6.7	-3.9	-1.1	1.7	4.4	7.2	10.0	12.8
1800	1.31	1.36	1.45	1.58	1.73	1.91	2.12	2.36	2.63	2.94
2300	1.59	1.68	1.80	1.95	2.12	2.32	2.54	2.78	3.05	3.33
2800	1.76	1.81	1.91	2.04	2.20	2.39	2.61	2.84	3.10	3.37
3500	1.75	1.79	1.88	1.99	2.14	2.32	2.53	2.76	3.02	3.31

Mass Flow (54.4° C Condenser)										kg/hr
Evaporator Temperature (° C)										
rpm	-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
3500	24.84	27.14	29.91	33.16	36.90	41.12	45.81	50.99	56.65	62.79

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

MASTERFLUX COMPRESSOR PERFORMANCE CHART (150V)
SIERRA05-0982Y3
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	735	821	891	946	984	1007	1015	1006	982	942
4500	981	1040	1091	1134	1168	1194	1211	1220	1220	1212
5300	1148	1210	1269	1323	1373	1419	1461	1498	1531	1561
6500	1666	1756	1832	1895	1945	1981	2005	2016	2014	1999

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	4.90	5.47	5.94	6.30	6.56	6.72	6.76	6.71	6.55	6.28
4500	6.54	6.94	7.28	7.56	7.79	7.96	8.07	8.13	8.13	8.08
5300	7.65	8.07	8.46	8.82	9.15	9.46	9.74	9.99	10.21	10.40
6500	11.11	11.70	12.21	12.63	12.96	13.21	13.37	13.44	13.43	13.32

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	1.51	1.51	1.57	1.67	1.81	1.99	2.23	2.53	2.90	3.37
4500	1.49	1.52	1.60	1.71	1.86	2.05	2.27	2.53	2.84	3.20
5300	1.48	1.53	1.62	1.74	1.89	2.06	2.25	2.47	2.71	2.97
6500	1.47	1.48	1.52	1.60	1.71	1.86	2.03	2.25	2.50	2.79

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 (100V)
SIERRA05-0982Y3

Capacity (130° F Condenser)										BTU/hr
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
1800	1608	1750	1935	2164	2436	2751	3109	3511	3957	4445
2300	2190	2388	2639	2944	3303	3715	4180	4699	5272	5898
2800	2749	2941	3209	3554	3975	4472	5046	5696	6422	7225
3500	3576	3889	4292	4784	5365	6035	6795	7643	8581	9608

Power Consumption (130° F Condenser)										watt
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
1800	360	376	390	402	413	422	430	435	440	442
2300	404	417	430	443	456	469	482	494	507	519
2800	458	475	492	510	529	548	567	587	607	627
3500	599	636	670	702	732	760	786	809	831	850

Current (130° F Condenser)										amp
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
1800	3.60	3.76	3.90	4.02	4.13	4.22	4.30	4.35	4.40	4.42
2300	4.04	4.17	4.30	4.43	4.56	4.69	4.82	4.94	5.07	5.19
2800	4.58	4.75	4.92	5.10	5.29	5.48	5.67	5.87	6.07	6.27
3500	5.99	6.36	6.70	7.02	7.32	7.60	7.86	8.09	8.31	8.50

EER (130° F Condenser)										BTU/h/watt
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
1800	4.46	4.66	4.96	5.38	5.90	6.52	7.24	8.06	9.00	10.05
2300	5.42	5.72	6.13	6.64	7.24	7.92	8.68	9.51	10.41	11.37
2800	6.00	6.19	6.52	6.96	7.52	8.17	8.90	9.71	10.58	11.52
3500	5.97	6.12	6.40	6.81	7.32	7.94	8.64	9.44	10.33	11.31

Mass Flow (130° F Condenser)										lb/hr
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
1800	24.94	26.93	29.50	32.63	36.32	40.59	45.42	50.82	56.78	63.31
2300	33.62	36.54	40.13	44.38	49.29	54.86	61.10	67.99	75.55	83.77
2800	41.02	45.37	50.39	56.09	62.46	69.50	77.21	85.60	94.66	104.39
3500	54.77	59.82	65.94	73.11	81.35	90.65	101.00	112.41	124.89	138.42

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

MASTERFLUX COMPRESSOR PERFORMANCE CHART (150V)
SIERRA05-0982Y3

Capacity (130° F Condenser)										BTU/hr
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
3700	3792	4237	4766	5380	6078	6861	7729	8681	9717	10839
4500	4983	5409	5958	6630	7424	8342	9382	10545	11831	13239
5300	5781	6339	7037	7875	8852	9969	11225	12621	14157	15832
6500	8362	8856	9524	10365	11379	12566	13927	15461	17168	19049

Power Consumption (130° F Condenser)										watt
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
3700	735	821	891	946	984	1007	1015	1006	982	942
4500	981	1040	1091	1134	1168	1194	1211	1220	1220	1212
5300	1148	1210	1269	1323	1373	1419	1461	1498	1531	1561
6500	1666	1756	1832	1895	1945	1981	2005	2016	2014	1999

Current (130° F Condenser)										amp
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
3700	4.90	5.47	5.94	6.30	6.56	6.72	6.76	6.71	6.55	6.28
4500	6.54	6.94	7.28	7.56	7.79	7.96	8.07	8.13	8.13	8.08
5300	7.65	8.07	8.46	8.82	9.15	9.46	9.74	9.99	10.21	10.40
6500	11.11	11.70	12.21	12.63	12.96	13.21	13.37	13.44	13.43	13.32

EER (130° F Condenser)										BTU/h/watt
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
3700	5.16	5.16	5.35	5.69	6.18	6.81	7.62	8.63	9.89	11.50
4500	5.08	5.20	5.46	5.85	6.36	6.99	7.75	8.64	9.70	10.92
5300	5.04	5.24	5.55	5.95	6.45	7.02	7.68	8.42	9.24	10.15
6500	5.02	5.04	5.20	5.47	5.85	6.34	6.94	7.67	8.52	9.53

Mass Flow (130° F Condenser)										lb/hr
Evaporator Temperature (° F)										
rpm	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0
3700	57.41	64.02	71.57	80.05	89.47	99.82	111.11	123.34	136.51	150.60
4500	78.34	83.50	90.32	98.80	108.93	120.71	134.15	149.24	165.99	184.40
5300	93.73	99.25	106.85	116.54	128.33	142.20	158.17	176.22	196.37	218.60
6500	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