



VTE-SC/-SD

150W

DC/DC Converter
Single / multi output



The VT-series are the high efficient DC/DC converters with single and multiple outputs which had developed by using our technology of excellent circuit. Each outputs are designed with separated individual circuits, it means never occur problems like cross regulation. Also, sub-channels due to designed to be low ripple and noise can fit on the analogue circuits.

Wide DC range of each input types are available.



Features

Wide input voltage range (9.2-140Vac)
Switching frequency: Data sheet page 2 to 7
MTBF: Data sheet page 2 to 7
High efficiency & reliability
Output voltage: +/-10% (single output)
 +/- 5% (multi output)
Warranty: 2 years

Mechanical features

Dimension (WxLxH): 70x200x97mm
Weight: 1.4Kg
Connector: Screw terminal
Closed type

Possibly applications

Process control
Office equipment
Computer peripherals
Telecommunications
Industrial electronics&machines

Control features

Over voltage protection: Output shutdown
Over current protection: Current limiting, aut. recovery



Specifications<DC/DC>	Model				
VTE**SC12 150WATTS/ 1 OUTPUT	VTE-05SC12	VTE-12SC12	VTE-15SC12	VTE-24SC12	VTE-48SC12
Input Characteristic					
Input Voltage	DC12V				
Input Range	DC9.2-16V				
Inrush Current	not specified				
Input current at rated output [A](typical)	14.42	16.05	14.88	15.66	16.30
Efficiency [%] (typical) *1	78	81	82	84	83
Output Characteristic					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	27.0	13.0	10.0	6.5	3.3
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	100	170	200	290	530
Regulation					
a.Statistic Line Regulation [mV](maximum)	25	60	75	120	240
b.Statistic Load Regulation [mV](maximum)	3	72	90	144	288
c.Temperature Coefficient *3	0.01%/°C				
d.Drift[mV](maximum) *4	40	75	90	135	255
e.Dynamic Load Regulation [mV](typical) *5	150	360	450	720	1440
f.Recovery Time *5	0.5mS				
Rise up time	200mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
Functions					
Over current Protection	Current limiting with automatic recovery				
Over voltage Protection	Output shutdown				
Remote Sense	available				
Remote On/Off	available				
Reverse voltage protection	not available				
Environmental					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	-				
Withstanding Voltage	Primary-Secondary AC1,500V for 1minute				
	Primary-Frame Ground AC1,500V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50M (minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s ²				
Cooling	Convection				
Line conduction noise	not specified				
Safety	-				
Weight (typical)	1400g				
MTBF [H]	420,000				
Switching Frequency[kHz](typical)	67 Fix.	67 Fix.	67 Fix.	67 Fix.	67 Fix.

Conditions:

*1 At DC12V input and rated output

*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

*3 At -5 to +50°C

*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

*5 When output current changed between 25% and 75% of rated output current rapidly at DC12V input



Specifications<DC/DC>	Model				
VTE**SC24 150WATTS/ 1 OUTPUT	VTE-05SC24	VTE-12SC24	VTE-15SC24	VTE-24SC24	VTE-48SC24
Input Characteristic					
Input Voltage	DC24V				
Input Range	DC19-32V				
Inrush Current	not specified				
Input current at rated output [A](typical)	7.91	8.57	8.38	8.64	8.86
Efficiency [%] (typical) *1	81	85	87	89	89
Output Characteristic					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	100	170	200	290	530
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	100	170	200	290	530
Regulation					
a.Statistic Line Regulation [mV](maximum)	25	60	75	120	240
b.Statistic Load Regulation [mV](maximum)	3	72	90	144	288
c.Temperature Coefficient *3	0.03%/°C				
d.Drift[mV](maximum) *4	40	75	90	135	255
e.Dynamic Load Regulation [mV](typical) *5	100	120	300	480	960
f.Recovery Time *5	0.5mS				
Rise up time	200mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
Functions					
Over current Protection	Current limiting with automatic recovery				
Over voltage Protection	Output shutdown				
Remote Sense	available				
Remote On/Off	available				
Reverse voltage protection	not available				
Environmental					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	-				
Withstanding Voltage	Primary-Secondary AC1,500V for 1minute				
	Primary-Frame Ground AC1,500V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50M (minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s ²				
Cooling	Convection				
Line conduction noise	not specified				
Safety	-				
Weight (typical)	1400g				
MTBF [H]	420,000				
Switching Frequency[kHz](typical)	67 Fix.	67 Fix.	67 Fix.	67 Fix.	67 Fix.

Conditions:

*1 At DC24V input and rated output

*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

*3 At -5 to +50°C

*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

*5 When output current changed between 25% and 75% of rated output current rapidly at rated input



Specifications<DC/DC>	Model				
VTE*SC48 150WATTS/ 1 OUTPUT	VTE-05SC48	VTE-12SC48	VTE-15SC48	VTE-24SC48	VTE-48SC48
Input Characteristic					
Input Voltage	DC48V				
Input Range	DC38-63V				
Inrush Current	not specified				
Input current at rated output [A](typical)	4.01	4.27	4.14	4.17	4.07
Efficiency [%] (typical) *1	83	86	87	89	91
Output Characteristic					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	30.0	14.0	11.0	7.0	3.5
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *2	100	170	200	290	530
Regulation					
a.Statistic Line Regulation [mV](maximum)	25	60	75	120	240
b.Statistic Load Regulation [mV](maximum)	30	72	90	144	288
c.Temperature Coefficient *3	0.01%/°C				
d.Drift[mV](maximum) *4	40	75	90	135	255
e.Dynamic Load Regulation [mV](typical) *5	100	240	300	480	960
f.Recovery Time *5	0.5mS				
Rise up time	200mS(maximum) at 25°C and rated input/output				
Hold up time	not specified				
Functions					
Over current Protection	Current limiting with automatic recovery				
Over voltage Protection	Output shutdown				
Remote Sense	available				
Remote On/Off	available				
Reverse voltage protection	not available				
Environmental					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	-				
Withstanding Voltage	Primary-Secondary AC1,500V for 1minute				
	Primary-Frame Ground AC1,500V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50M (minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s ²				
Cooling	Convection				
Line conduction noise	not specified				
Safety	-				
Weight (typical)	1400g				
MTBF [H]	430,000				
Switching Frequency[kHz](typical)	70 Fix.	70 Fix.	70 Fix.	70 Fix.	70 Fix.

Conditions:

*1 At DC48V input and rated output

*2 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

*3 At -5 to +50°C

*4 For 7hour period after 1hour warm-up at 25°C and rated input/output

*5 When output current changed between 25% and 75% of rated output current rapidly at rated input



Specifications<DC/DC>	Model				
VTE*SD 150WATTS/ 1 OUTPUT	VTE-05SD	VTE-12SD	VTE-15SD	VTE-24SD	VTE-48SD
Input Characteristic					
Input Voltage	DC110V				
Input Range	DC85-140V				
Inrush Current *1	20A				
Input current at rated output [A](typical)	1.68	1.82	1.74	1.76	2.08
Efficiency [%] (typical) *2	81	84	86	87	88
Output Characteristic					
Output Voltage [V]	5	12	15	24	48
Output Current [A]	30.0	14.0	11.0	7.0	4.2
Voltage Adjust Range	+/- 10% of Rated Output Voltage (at no load within the input range)				
Ripple and Noise [mVp-p](maximum) *3	150	220	250	340	580
Regulation					
a.Statistic Line Regulation [mV](maximum)	40	96	120	192	384
b.Statistic Load Regulation [mV](maximum)	45	108	135	216	432
c.Temperature Coefficient *4	0.03%/°C				
d.Drift[mV](maximum) *5	40	75	90	135	255
e.Dynamic Load Regulation [mV](typical) *6	150	360	450	720	1440
f.Recovery Time *6	0.5mS				
Rise up time	500mS(maximum) at 25°C and rated input/output				
Hold up time	10mS(typical) at 25°C and rated input/output				
Functions					
Over current Protection	Current limiting with automatic recovery				
Over voltage Protection	Output shutdown				
Remote Sense	available				
Remote On/Off	available				
Reverse voltage protection	by internal bridge diode				
Environmental					
Operating Temperature	0 to +50°C				
Operating Humidity	85%RH(non-condensing)				
Storage Temperature	-20 to +85°C				
Storage Humidity	-				
Withstanding Voltage	Primary-Secondary AC2,000V for 1minute				
	Primary-Frame Ground AC2,000V for 1minute				
	Secondary-Frame Ground AC500V for 1minute				
Isolation Resistance Primary-Secondary-Frame Ground	50M (minimum) by DC500V insulation tester				
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s ² ,20minutes, period for 60minutes each along X,Y,Z axes(non-operating)				
Shock	294m/s ²				
Cooling	Convection				
Line conduction noise	not specified				
Safety	-				
Weight (typical)	1400g				
MTBF [H]	400,000				
Switching Frequency[kHz](typical)	120 Fix.	120 Fix.	120 Fix.	120 Fix.	120 Fix.

Conditions:

*1 At cold start

*2 At DC110V and rated output

*3 Measured by a bayonet probe at the output connector at a 0 to 100MHz bandwidth

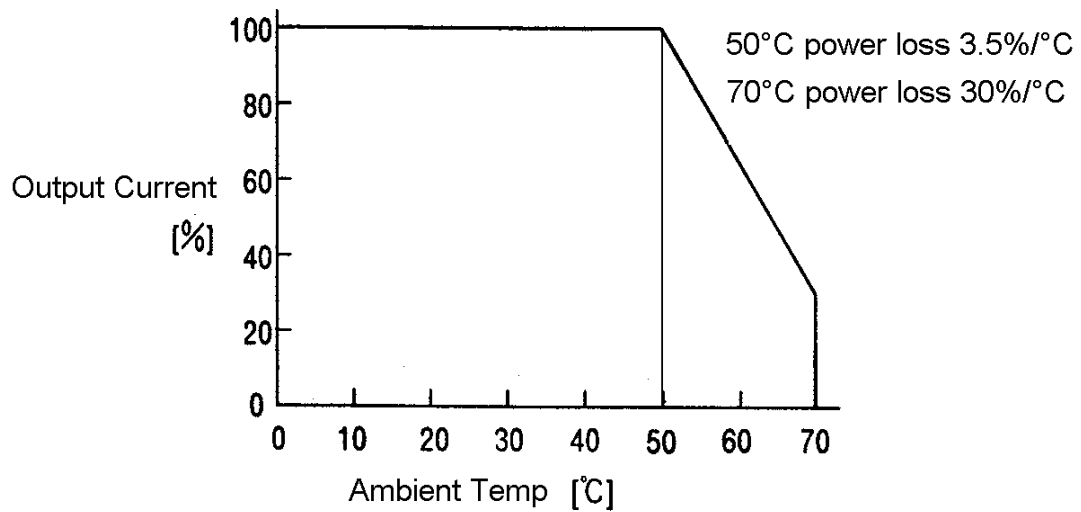
*4 At -5 to +50°C

*5 For 7hour period after 1hour warm-up at 25°C and rated input/output

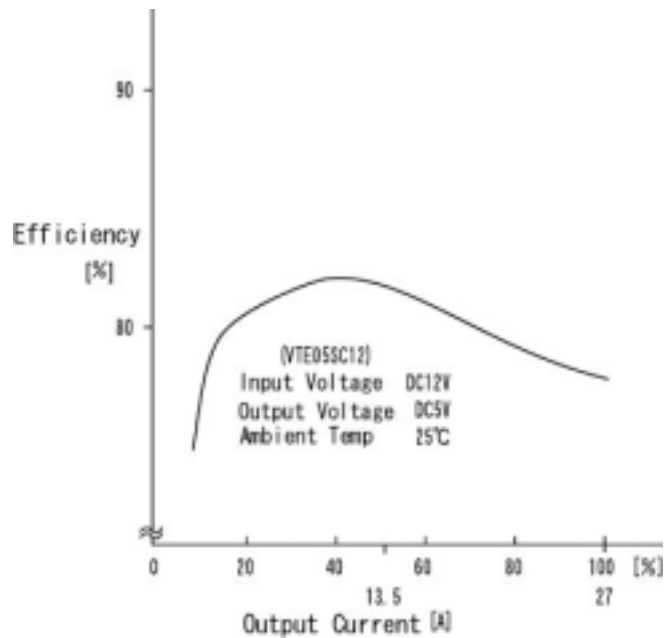
*6 When output current changed between 25% and 75% of rated output current rapidly at rated input



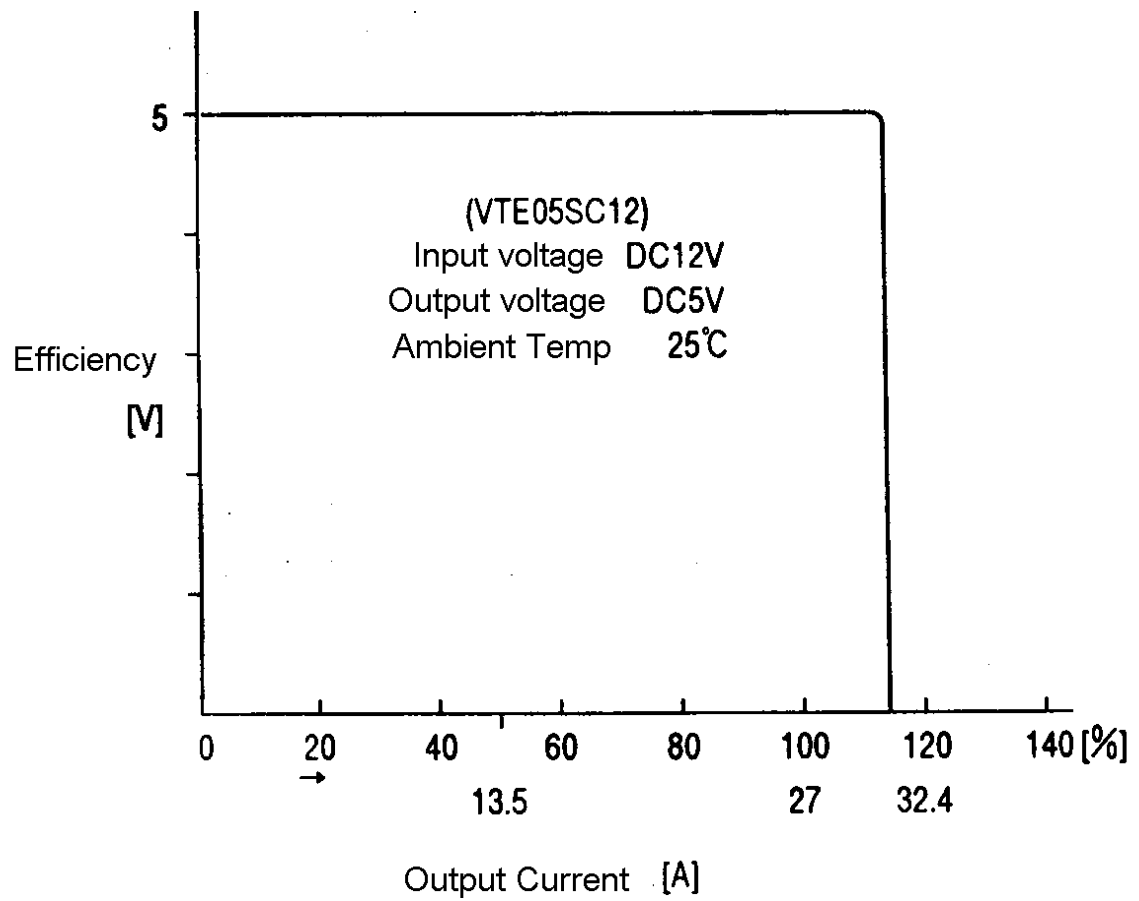
Derating



Efficiency

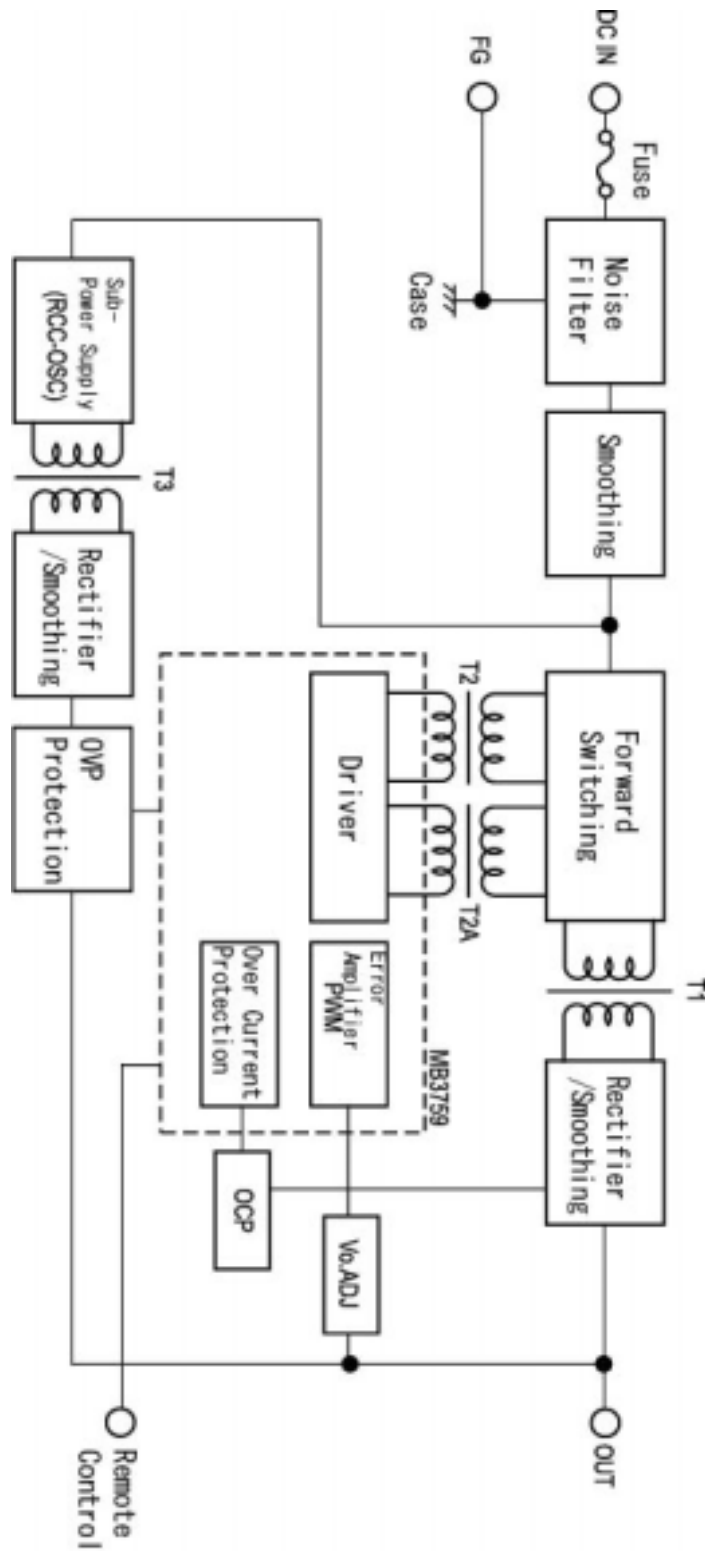


OCP





Block diagram



Dimension

