A 45 45 750 V, 680 A S S D C456 6-P 146 M46

VE-T [™] **D M 6 NVH680S75L4SPC**

Product Description

The NVH680S75L4SPC is a power module from the VE–Trac $^{\text{\tiny{TM}}}$

Pin Description

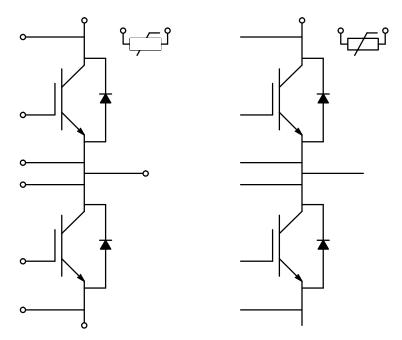


Figure 1. Pin Description

$\label{eq:module_characteristics} \begin{tabular}{ll} MODULE CHARACTERISTICS (T_{vj} = 25°C, Unless Otherwise Specified) \\ \end{tabular}$

Symbol	Parameter	Rating	Unit
T_{vj}	Operating Junction Temperature	-40 to 175	°C
T _{STG}	Storage Temperature	-40 to 125	°C
V _{ISO}	Isolation Voltage (DC, 0 Hz, 1 s)	4200	V
L _{sCE}	Stray Inductance	10	nΗ
RCC'+EE'	Module Lead Resistance, Terminals – Chip	0.75	mΩ
G	Module Weight	700	g
CTI	Comparative Tracking Index	>200	-
d _{creep}	Creepage: Terminal to Heatsink Terminal to Terminal	9.0 9.0	mm
d _{clear}	Clearance: Terminal to Heatsink Terminal to Terminal	4.5 4.5	mm

Symbol	Parameters	Conditions	Min	Тур	Max	Unit
Δρ	Pressure Drop in Cooling Circuit	10 L/min, 65°C, 50/50 EGW	ı	95	_	mbar
P (Note 1)	Maximum Pressure in Cooling Loop (relative)	T _{Baseplate} < 40°C T _{Baseplate} > 40°C	1 1	-	2.5	

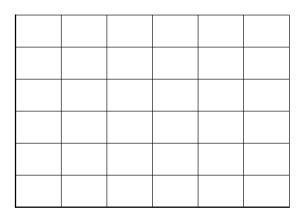
CHARACTERISTICS OF INVERSE DIODE (T $_{\rm vj}$ = 25°C, Unless Otherwise Specified)

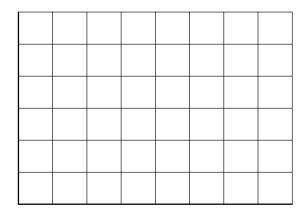
Symbol	Parameters	Conditions		Min	Тур	Max	Unit
V _F	Diode Forward Voltage (Terminal)	I _F = 500 A	T _{vj} = 25°C	ı	1.60	1.85	V
	Diode Forward Voltage (Chip)	I _F = 500 A	$T_{vj} = 25^{\circ}C$ $T_{vj} = 150^{\circ}C$ $T_{vj} = 175^{\circ}C$		1.53 1.45 1.40	1.78 - -	
		I _F = 680 A	$T_{vj} = 25^{\circ}C$ $T_{vj} = 150^{\circ}C$ $T_{vj} = 175^{\circ}C$	- - -	1.65 1.61 1.57	- - -	
E _{rr}	Reverse Recovery Energy	$I_F = 500 \text{ A}, V_R = 400 \text{ V},$ $V_{GE} = +15/-8 \text{ V},$ $R_{g.on} = 4.7 \Omega$	di/dt = 3.5 A/nS, $T_{vj} = 25^{\circ}\text{C}$ di/dt = 3.0 A/nS, $T_{vj} = 150^{\circ}\text{C}$	-	3 8	-	mJ
			di/dt = 2.8 A/nS, $T_{vj} = 175^{\circ}\text{C}$	ı	10	ı	
Q_{RR}	Recovered Charge	$I_F = 500 \text{ A}, V_R = 400 \text{ V}, V_{GE} = -8 \text{ V},$	$di/dt = 3.5 \text{ A/nS},$ $T_{vj} = 25^{\circ}\text{C}$	-	11	-	μC
		$R_{g.on} = 4.7 \Omega$	$di/dt = 3.0 \text{ A/nS},$ $T_{vj} = 150^{\circ}\text{C}$	-	32	-	
			$di/dt = 2.8 \text{ A/nS},$ $T_{vj} = 175^{\circ}\text{C}$	-	38	-	
I _{rr}	Peak Reverse Recovery Current	$I_F = 500 \text{ A}, V_R = 400 \text{ V}, V_{GE} = -8 \text{ V}, R_{g.on} = 4.7 \Omega$	$di/dt = 3.5 \text{ A/nS},$ $T_{vi} = 25^{\circ}\text{C}$	-	141	-	Α
			$di/dt = 3.0 \text{ A/nS},$ $T_{vj} = 150^{\circ}\text{C}$	-	247	-	
			di/dt = 2.8 A/nS, T _{vj} = 175°C	_	265	-	

NTC SENSOR CHARACTERISTICS ($T_{vj} = 25^{\circ}C$, Unless Otherwise Specified)

Symbol	Parameters	Conditions	Min	Тур	Max	Unit
R ₂₅ (Note 3)	Rated Resistance	$T_C = 25^{\circ}C$	-	5147	_	Ω
ΔR/R	Deviation of R ₁₀₅	$T_C = 105^{\circ}C, R_{105} = 472 \Omega$	5	_	5	%
P ₂₅	Power Dissipation	$T_C = 25^{\circ}C$	-	_	32	mW
B _{25/55}	B-Value	$R = R_{25} \exp [B_{25/55}]$ 25/45	6 e	-	='	•

TYPICAL CHARACTERISTICS



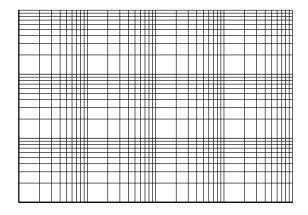


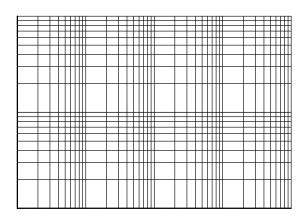
I_F (A)

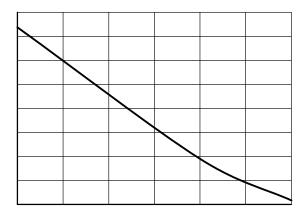
Figure 14. Diode Switching Losses vs. I_F

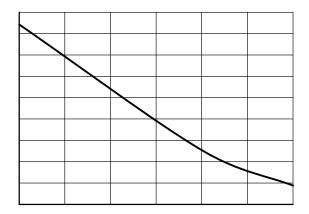
 $\mathsf{R}_\mathsf{G}\left(\Omega\right)$



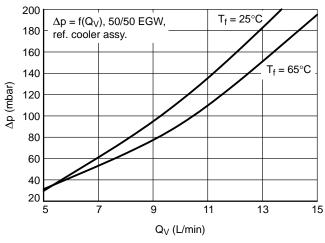








TYPICAL CHARACTERISTICS





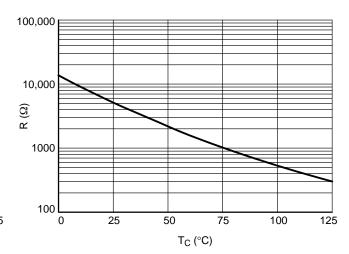


Figure 21. NTC Thermistor – Temperature Characteristic (Typical)

PACKAGE DIMENSIONS

SSDC33, 154.50x92.0 (SPC) CASE 183AC ISSUE A

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