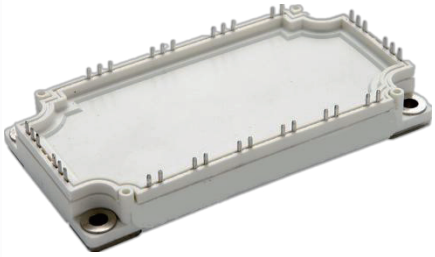
G75FF120TK-G5

Features

►High short circuit capability,self limiting short circuit current
►IGBT CHIP(Highly rugged SPT+ design)
►VCE(sat) with positive temperature coefficient
►Ultra Low Loss, High ruggedness
►Free wheeling diodes with fast and soft reverse recovery
►Temperature sense included



G5 Series Module

Applications

►AC motor control
►Inverter and power supplies
►Motion/servo control

Absolute Maximum Ratings Tc=25ºC, unless otherwise specified

Symbol	Parameter	Test Conditions	Values	Unit
IGBT-Inverter				
V_{CES}	Collector - Emitter Voltage	T_{vj}=25°C	1200	V
V_{GES}	Gate - Emitter Voltage		±20	V
I_C	DC Collector Current	T_C=25°C	150	A
		T_C=100°C	75	A
I_{CM}	Repetitive Peak Collector Current	t_p=1ms	150	A
P_{tot}	Power Dissipation Per IGBT	T_C=25°C, Tjmax=175°C	355	W
Diode-Inverter				
V_{RRM}	Repetitive Reverse Voltage	T_{vj}=25°C	1200	V
$I_{F(AV)}$	Average Forward Current	Tc=25°C	150	A
		Tc=100°C	75	A
I_{FRM}	Repetitive Peak Forward Current	t_p=1ms	150	A

ELECTRICAL AND THERMAL CHARACTERISTICS TC=25°C unless otherwise specified

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
IGBT-Inverter							
$V_{GE(th)}$	Gate - Emitter Threshold Voltage	$V_{CE}=V_{GE}$, I_C=2mA		4.5	5.5	6.5	V
$V_{CE(sat)}$	Collector - Emitter Saturation Voltage	I_C=75A, V_{GE}=15V, T_{vj}=25°C			1.8	2.1	V
		I_C=75A, V_{GE}=15V, T_{vj}=125°C			2.2		V
I_{CES}	Collector Leakage Current	V_{CE}=1200V, V_{GE}=0V, T_{vj}=25°C				1	mA
		V_{CE}=1200V, V_{GE}=0V, T_{vj}=125°C				5	mA
I_{GES}	Gate Leakage Current	V_{CE}=0V,V_{GE}±15V, T_{vj}=125°C		-500		500	nA
R_{gint}	Internal gate resistor				1		Ω
Q_{ge}	Gate Charge	V_{CE}=600V, Ic=75A , V_{GE}=±15V			0.36		uC
C_{ies}	Input Capacitance	V_{CE}=30V, V_{GE}=0V, f =1MHz			6.1		nF
C_{res}	Reverse Transfer Capacitance				0.21		nF
$t_{d(on)}$	Turn - on Delay Time	Vcc=600V,Ic=75A, R_G =35Ω, V_{GE}=±15V, Inductive Load	T_{vj} =25°C		160		ns
			T_{vj} =125°C		180		ns
t_r	Rise Time		T_{vj} =25°C		143		ns
			T_{vj} =125°C		150		ns
$t_{d(off)}$	Turn - off Delay Time	Vcc=600V,Ic=75A, R_G =35Ω, V_{GE}=±15V, Inductive Load	T_{vj} =25°C		650		ns
			T_{vj} =125°C		675		ns
t_f	Fall Time		T_{vj} =25°C		170		ns
			T_{vj} =125°C		186		ns
E_{on}	Turn - on Energy	Vcc=600V,Ic=75A, R_G =35Ω, V_{GE}=±15V, Inductive Load	T_{vj} =25°C		14.2		mJ
			T_{vj} =125°C		TBD		mJ
E_{off}	Turn - off Energy		T_{vj} =25°C		4.9		mJ
			T_{vj} =125°C		TBD		mJ
Isc	Short Circuit Current	t_{psc}≤10μS , V_{GE}=15V T_{vj}=150°C,Vcc=600V			300		A
R_{thJC}	Junction-to-Case Thermal Resistance **(Per IGBT)**					0.35	K /W
Diode-Inverter							
V_F	Forward Voltage	I_F=75A , V_{GE}=0V, T_{vj} =25°C			2	2.3	V
		I_F=75A , V_{GE}=0V, T_{vj} =125°C			2		V
Q_{rr}	Reversed charge	I_F=75A , V_R=600V			13		uC
I_{RRM}	Max. Reverse Recovery Current	di_F/dt=-1200A/μs			46		A
E_{rec}	Reverse Recovery Energy	T_{vj} =125°C			8.6		mJ
R_{thJCD}	Junction-to-Case Thermal Resistance **(Per Diode)**					0.52	K /W

NTC CHARACTERISTICS

T_C=25°C unless otherwise specified

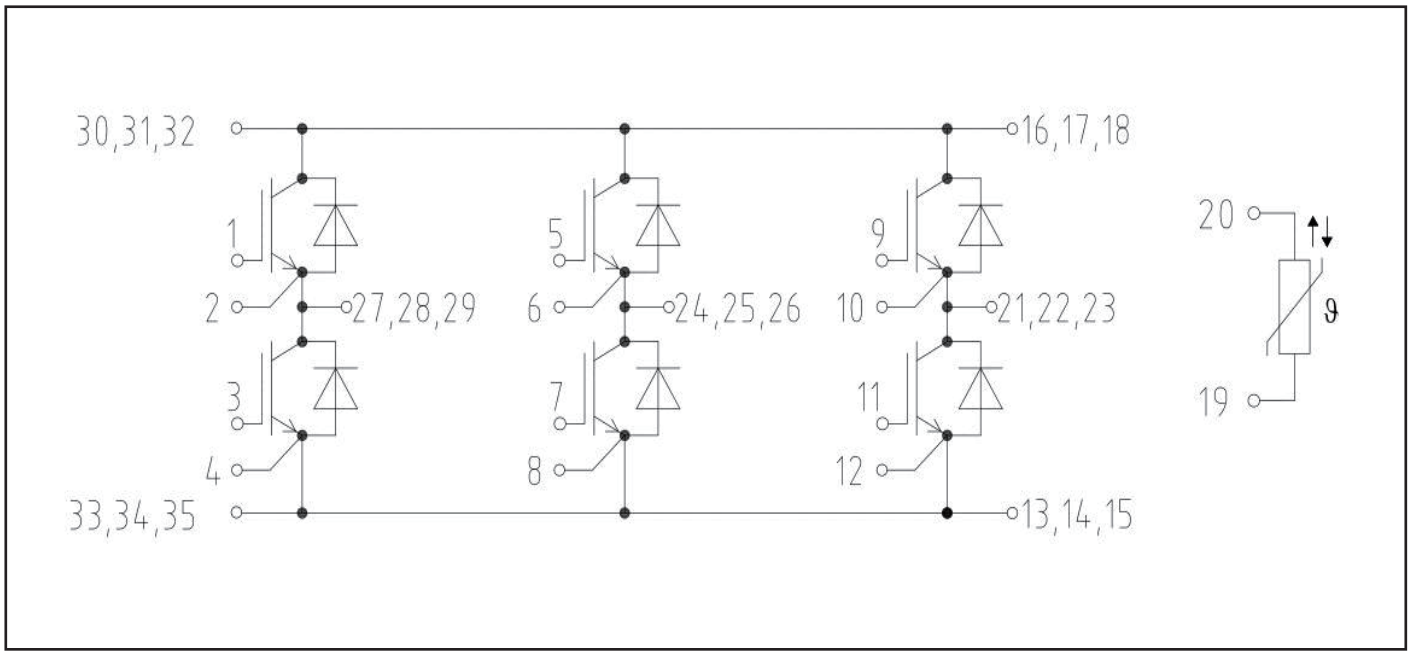
Symbol	Parameter	Test Conditions	Values	Unit
R_{25}	Resistance	T_{vj}=25°C	5	KΩ
$B_{25/50}$	R2 = R25 exp [B25/50(1/T2 - 1/(298,15 K))]		3375	K

MODULE CHARACTERISTICS

T_C=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$T_{vj\ max}$	Max. Junction Temperature				175	°C
$T_{vj\ op}$	Operating Temperature		-40		150	°C
T_{stg}	Storage Temperature		-40		150	°C
V_{isol}	Insulation Test Voltage	AC, t=1min		3500		V
Torque	To-Sink	Recommended（M5）	3		6	N·m
Weight				310		g

Circuit Diagram



Package Outline