

SKiiP 02NEC066V20



MiniSKiiP® 0

1-phase bridge rectifier +
3-phase bridge inverter

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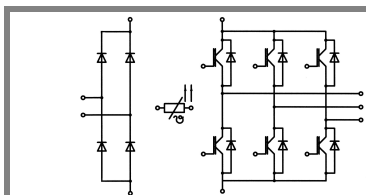
Target Data

Features

- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 4,8 kVA
- Typical motor power 2,2 kW



NEC

Absolute Maximum Ratings		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter			
V_{CES}		600	V
I_C	$T_s = 25\text{ (70) }^\circ\text{C}$	15 (12)	A
I_{CRM}	$T_s = 25\text{ (70) }^\circ\text{C}$, $t_p \leq 1\text{ ms}$	30 (24)	A
V_{GES}		± 20	V
T_j		- 40 ... + 150	$^\circ\text{C}$
Diode - Inverter			
I_F	$T_s = 25\text{ (70) }^\circ\text{C}$	21 (16)	A
I_{FRM}	$T_s = 25\text{ (70) }^\circ\text{C}$, $t_p \leq 1\text{ ms}$	42 (32)	A
T_j		- 40 ... + 150	$^\circ\text{C}$
Diode - Rectifier			
V_{RRM}		800	V
I_F	$T_s = 70\text{ }^\circ\text{C}$	20	A
I_{FSM}	$t_p = 10\text{ ms}$, $\sin 180^\circ$, $T_j = 25\text{ }^\circ\text{C}$	220	A
i^2t	$t_p = 10\text{ ms}$, $\sin 180^\circ$, $T_j = 25\text{ }^\circ\text{C}$	240	A^2s
T_j		- 40 ... + 150	$^\circ\text{C}$
I_{tRMS}	per power terminal (20 A / spring)	20	A
T_{stg}	$T_{op} \leq T_{stg}$	- 40 ... + 125	$^\circ\text{C}$
V_{isol}	AC, 1 min.	2500	V

Characteristics		$T_s = 25\text{ }^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter					
V_{CEsat}	$I_C = 10\text{ A}$, $T_j = 25\text{ (125) }^\circ\text{C}$	1,75 (2)	2,25 (2,5)		V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = \text{mA}$				V
$V_{CE(TO)}$	$T_j = 25\text{ (125) }^\circ\text{C}$	0,9 (0,8)	1 (0,9)		V
r_T	$T_j = 25\text{ (125) }^\circ\text{C}$	85 (120)	125 (160)		m Ω
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$	0,61			nF
C_{oes}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$	0,19			nF
C_{res}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$	0,05			nF
$R_{th(j-s)}$	per IGBT	2,4			K/W
$t_{d(on)}$	under following conditions	13			ns
t_r	$V_{CC} = 300\text{ V}$, $V_{GE} = \pm 15\text{ V}$	17			ns
$t_{d(off)}$	$I_C = 10\text{ A}$, $T_j = 125\text{ }^\circ\text{C}$	150			ns
t_f	$R_{Gon} = R_{Goff} = 23\text{ }^\circ\Omega$	45			ns
E_{on}	inductive load	0,32			mJ
E_{off}		0,33			mJ
Diode - Inverter					
$V_F = V_{EC}$	$I_F = 10\text{ A}$, $T_j = 25\text{ (125) }^\circ\text{C}$	1,4 (1,4)	1,7 (1,7)		V
$V_{(TO)}$	$T_j = 25\text{ (125) }^\circ\text{C}$	1 (0,9)	1,1 (1)		V
r_T	$T_j = 25\text{ (125) }^\circ\text{C}$	45 (50)	60 (70)		m Ω
$R_{th(j-s)}$	per diode	2,4			K/W
I_{RRM}	under following conditions	11			A
Q_{rr}	$I_F = 10\text{ A}$, $V_R = 300\text{ V}$	1,1			μC
E_{rr}	$V_{GE} = 0\text{ V}$, $T_j = 125\text{ }^\circ\text{C}$	0,18			mJ
	$di_F/dt = 1050\text{ A}/\mu\text{s}$				
Diode - Rectifier					
V_F	$I_F = 15\text{ A}$, $T_j = 25\text{ }^\circ\text{C}$	1,15			V
$V_{(TO)}$	$T_j = 150\text{ }^\circ\text{C}$	0,8			V
r_T	$T_j = 150\text{ }^\circ\text{C}$	20			m Ω
$R_{th(j-s)}$	per diode	1,8			K/W
Temperature Sensor					
R_{ts}	3 %, $T_r = 25\text{ (100) }^\circ\text{C}$	1000(1670)			Ω
Mechanical Data					
w		35			g
M_s	Mounting torque	2	2,5		Nm

