

# SKiiP 16GH066V1



MiniSKiiP<sup>®</sup>1

## H-bridge inverter

### SKiiP 16GH066V1

#### Preliminary Data

#### Features

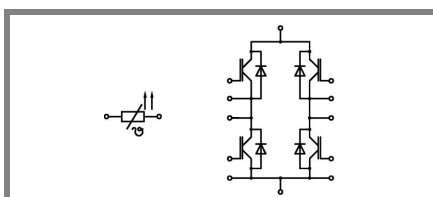
- Trench IGBTs
- Robust and soft freewheeling diode in CAL technology
- Highly reliable spring contacts for electrical connection
- UL recognised file no. E63532

#### Remarks

- Case temperature limited to  $T_C = 125^\circ\text{C}$
- Product reliability results are valid for  $T_j = 150^\circ\text{C}$
- SC data:  $t_p \leq 6 \mu\text{s}$ ;  $V_{GE} \leq 15 \text{ V}$ ;  $T_j = 150^\circ\text{C}$ ;  $V_{CC} = 360 \text{ V}$
- $V_{CEsat}$ ,  $V_F = \text{chip level value}$

Absolute Maximum Ratings		$T_S = 25^\circ\text{C}$ , unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT - Inverter</b>			
$V_{CES}$		600	V
$I_C$	$T_S = 25 (70)^\circ\text{C}, T_j = 150^\circ\text{C}$	56 (43)	A
$I_C$	$T_S = 25 (70)^\circ\text{C}, T_j = 175^\circ\text{C}$	61 (49)	A
$V_{GES}$		$\pm 20$	V
$T_j$		-40...+175	$^\circ\text{C}$
<b>Diode - Inverter</b>			
$I_F$	$T_S = 25 (70)^\circ\text{C}, T_j = 150^\circ\text{C}$	48 (35)	A
$I_F$	$T_S = 25 (70)^\circ\text{C}, T_j = 175^\circ\text{C}$	54 (42)	A
$T_j$		-40...+175	$^\circ\text{C}$
$I_{tRMS}$	per power terminal (20 A / spring)	60	A
$T_{stg}$	$T_{op} \leq T_{stg}$	-40...+125	$^\circ\text{C}$
$V_{isol}$	AC, 1 min.	2500	V

Characteristics		$T_S = 25^\circ\text{C}$ , unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Inverter</b>					
$V_{CEsat}$	$I_C = 50 \text{ A}, T_j = 25 (150)^\circ\text{C}$	1,05	1,45 (1,65)	1,85 (2,05)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 1 \text{ mA}$		5,8		V
$V_{CE(TO)}$	$T_j = 25 (150)^\circ\text{C}$		0,9 (0,8)	1,1 (1)	V
$r_T$	$T_j = 25 (150)^\circ\text{C}$		11 (17)	15 (21)	m $\Omega$
$C_{ies}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		2,87		nF
$C_{oes}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,6		nF
$C_{res}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,46		nF
$R_{CC+EE'}$	spring contact-chip $T_S = 25 (150)^\circ\text{C}$				m $\Omega$
$R_{th(j-s)}$	per IGBT		0,94		K/W
$t_{d(on)}$	under following conditions		40		ns
$t_r$	$V_{CC} = 300 \text{ V}, V_{GE} = -8\text{V}/+15\text{V}$		40		ns
$t_{d(off)}$	$I_C = 50 \text{ A}, T_j = 150^\circ\text{C}$		425		ns
$t_f$	$R_{Gon} = R_{Goff} = 18 \Omega$		40		ns
$E_{on}(E_{off})$	inductive load		1,65 (1,7)		mJ
<b>Diode - Inverter</b>					
$V_F = V_{EC}$	$I_F = 50 \text{ A}, T_j = 25 (150)^\circ\text{C}$		1,5 (1,5)	1,7 (1,7)	V
$V_{(TO)}$	$T_j = 25 (150)^\circ\text{C}$		1 (0,9)	1,1 (1)	V
$r_T$	$T_j = 25 (150)^\circ\text{C}$		10 (12)	12 (14)	m $\Omega$
$R_{th(j-s)}$	per diode		1,58		K/W
$I_{RRM}$	under following conditions		44		A
$Q_{rr}$	$I_F = 50 \text{ A}, V_R = 300 \text{ V}$		5,5		$\mu\text{C}$
$E_{rr}$	$V_{GE} = 0 \text{ V}, T_j = 150^\circ\text{C}$ $di_F/dt = 1400 \text{ A}/\mu\text{s}$		1,25		mJ
<b>Temperature Sensor</b>					
$R_{ts}$	3 %, $T_r = 25 (100)^\circ\text{C}$		1000(1670)		$\Omega$
<b>Mechanical Data</b>					
m			35		g
$M_s$	Mounting torque	2		2,5	Nm



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