SKiiP 28AC066V1

MiniSKiiP®2

3-phase bridge inverter

SKiiP 28AC066V1

Features

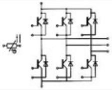
- Trench IGBTs
- Robust and soft freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognised file no. E63532

Typical Applications

- Inverter up to 22 kVA
- Typical motor power 11kW

Remarks

- Case temperature limited to T_C = 125°C max.
- Product reliability results are valid for T_j = 150°C
- SC data: $t_p \le 6$ µs; $V_{GE} \le 15$ V; T_j = 150°C; V_{CC} = 360 V
- V_{CEsat}, V_F = chip level value



AC

Absolute Maximum Ratings		T_S = 25 °C, unless otherwise specified	
Symbol	**Conditions**	**Values**	**Units**
IGBT - Inverter			
V_{CES}		600	V
I_C	T_s = 25 (70) °C ,T_j = 150 °C	101 (68)	A
I_C	T_s = 25 (70) °C ,T_j = 175 °C	112 (83)	A
I_{CRM}	t_p = 1 ms	200	A
V_{GES}		± 15	V
T_j		-40...+175	°C
Diode - Inverter			
I_F	T_s = 25 (70) °C ,T_j = 150 °C	103 (67)	A
I_F	T_s = 25 (70) °C ,T_j = 175 °C	112 (81)	A
I_{FRM}	t_p = 1 ms	200	A
T_j		-40...+175	°C
I_{tRMS}	per power terminal (20 A / spring)	100	A
T_{stg}	$T_{op} \le T_{stg}$	-40...+125	°C
V_{isol}	AC, 1 min.	2500	V

Characteristics			T_C = 25 °C, unless otherwise specified		
Symbol	**Conditions**	**min.**	**typ.**	**max.**	**Units**
IGBT - Inverter					
V_{CEsat}	I_{Cnom} = 100 A ,T_j = 25 (150) °C	1,05	1,45 (1,65)	1,85 (2,05)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, I_C = 2 mA		5,8		V
$V_{CE(TO)}$	T_j = 25 (150) °C		0,9 (0,8)	1,1 (1)	V
r_T	T_j = 25 (150) °C		5,5 (8,5)	7,5 (10,5)	mΩ
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		6,15		nF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1,12		nF
C_{res}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		0,9		nF
$R_{CC'+EE'}$	spring contact-chip T_s = 25 (150)°C				mΩ
$R_{th(j-s)}$	per IGBT		0,6		K/W
$t_{d(on)}$	under following conditions		40		ns
t_r	V_{CC} = 300 V, V_{GE} = -8V/+15V		40		ns
$t_{d(off)}$	I_{Cnom} = 100 A, T_j = 150 °C		410		ns
t_f	$R_{Gon} = R_{Goff}$ = 8,2 Ω		50		ns
$E_{on}(E_{off})$	inductive load		3,4 (3,5)		mJ
Diode - Inverter					
$V_F = V_{EC}$	I_{Fnom} = 100 A ,T_j = 25 (150) °C		1,3 (1,3)	1,5 (1,5)	V
$V_{(TO)}$	T_j = 25 (150) °C		0,9 (0,8)	1 (0,9)	V
r_T	T_j = 25 (150) °C		4 (5)		mΩ
$R_{th(j-s)}$	per diode		0,8		K/W
I_{RRM}	under following conditions		102		A
Q_{rr}	I_{Fnom} = 100 A, V_R = 300 V		15,5		µC
E_{rr}	V_{GE} = 0 V, T_j = 150 °C		3,3		mJ
	di_F/dt = 2560 A/µs				
Temperature Sensor					
R_{ts}	3 %, T_r = 25 (100) °C		1000(1670)		Ω
Mechanical Data					
m			65		g
M_s	Mounting torque	2		2,5	Nm

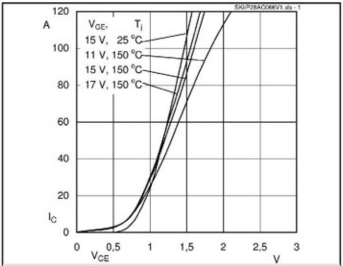


Fig. 1 Output characteristic

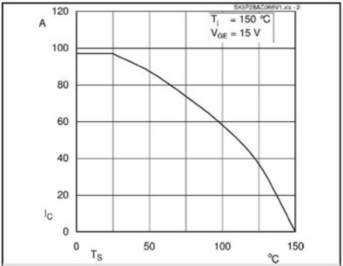


Fig. 2 Rated current vs. temperature

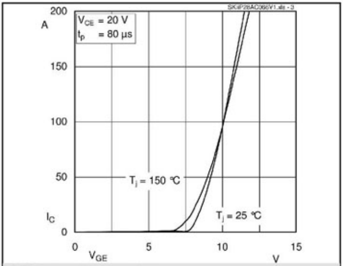


Fig. 3 Typ. transfer characteristic

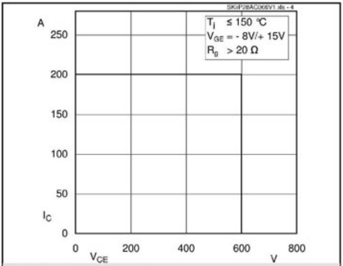


Fig. 4 Reverse bias safe operating area

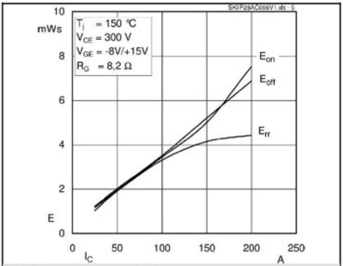


Fig. 5 Turn-on /-off energy = f (I_C)

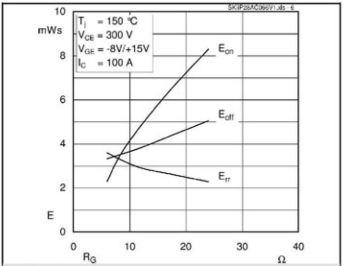


Fig. 6 Turn-on /-off energy = f (R_G)

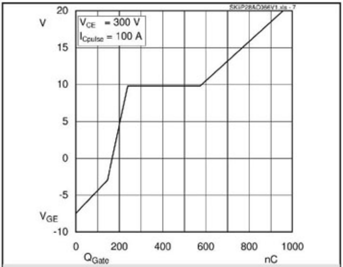


Fig. 7 Typ. Gate charge characteristic

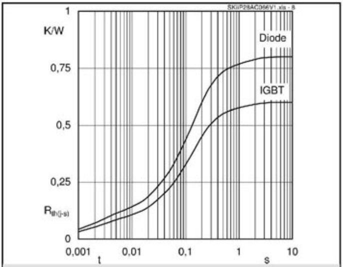


Fig. 8 Thermal impedance

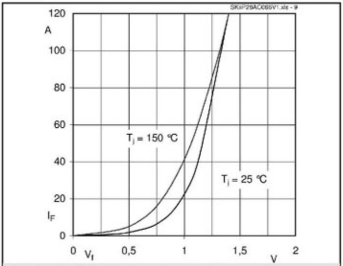
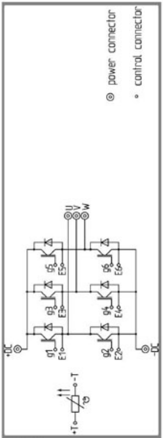
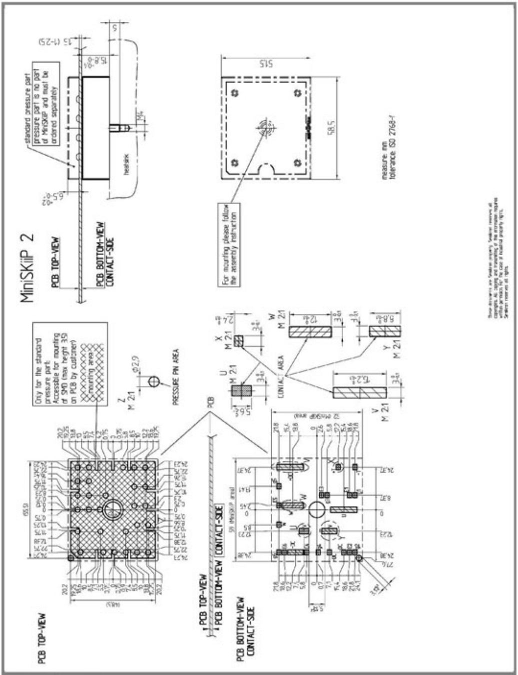


Fig. 9 Freewheeling diode forward characteristic



circuit



pinout, dimensions

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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