

SEMITOP® 3

3-phase bridge rectifier +
brake chopper + 3-phase
bridge inverter
SK 25 DGDL 063

Target Data

Features

- Clearance and creepage distances in compliance UL508
- Low tail current with low temperature dependence
- One screw mounting
- Compact design
- High short circuit capability

Typical Applications

- Inverter up to 10,0 kVA
- Typical motor power 4,0 kW

DGDL

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter (IGBT Chopper see SK 10 DGDL 063 data sheet)			
V_{CES}		600	V
I_C	$T_s = 25 (80)^\circ\text{C}$	32 (22)	A
I_{CRM}	$T_s = 25 (80)^\circ\text{C}$, $t_p \leq 1 \text{ ms}$	64 (44)	A
V_{GES}		± 20	V
T_j		- 40 ... + 150	$^\circ\text{C}$
Diode - Inverter (Diode Chopper see SK 10 DGDL 063 data sheet)			
I_F	$T_s = 25 (80)^\circ\text{C}$	36 (24)	A
I_{FRM}	$T_s = 25 (70)^\circ\text{C}$, $t_p \leq 1 \text{ ms}$	72 (48)	A
T_j		- 40 ... + 150	$^\circ\text{C}$
Diode - Rectifier			
V_{RRM}		800	V
I_F	$T_s = 80^\circ\text{C}$	25	A
I_{FSM}	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 150^\circ\text{C}$	270	A
i^2t	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 150^\circ\text{C}$	365	A^2s
T_j		- 40 ... + 150	$^\circ\text{C}$
I_{RMS}	per power terminal (20 A / spring)		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
IGBT - Inverter (IGBT Chopper see SK 10 DGDL 063 data sheet)					
V_{CEsat}	$I_C = 25 \text{ A}$, $T_j = 25 (125)^\circ\text{C}$		1,9 (2,1)		V
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 0,5 \text{ mA}$		5,5		V
$V_{CE(TO)}$	$T_j = 25 (125)^\circ\text{C}$				V
r_T	$T_j = 25 (125)^\circ\text{C}$				$\text{m}\Omega$
C_{ies}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		1,6		nF
C_{oes}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		-		nF
C_{res}	$V_{CE} = 25 \text{ V}$, $V_{GE} = 0 \text{ V}$, $f = 1 \text{ MHz}$		-		nF
$R_{th(j-s)}$	per IGBT			1,4	K/W
$t_{d(on)}$	under following conditions		-		ns
t_r	$V_{CC} = 300 \text{ V}$, $V_{GE} = \pm 15 \text{ V}$		-		ns
$t_{d(off)}$	$I_C = 25 \text{ A}$, $T_j = 125^\circ\text{C}$		-		ns
t_f	$R_{Gon} = R_{Goff} = 33 \Omega$		-		ns
E_{on}	inductive load		0,8		mJ
E_{off}			0,8		mJ
Diode - Inverter (Diode Chopper see SK 10 DGDL 063 data sheet)					
$V_F = V_{EC}$	$I_F = 25 \text{ A}$, $T_j = 25 (125)^\circ\text{C}$		1,45 (1,4)		V
$V_{(TO)}$	$T_j = 25 (125)^\circ\text{C}$		(0,85)		V
r_T	$T_j = 25 (125)^\circ\text{C}$		(22)		$\text{m}\Omega$
$R_{th(j-s)}$	per diode			1,7	K/W
I_{RRM}	under following conditions		-		A
Q_{rr}	$I_F = 30 \text{ A}$, $V_R = 300 \text{ V}$		-		μC
E_{rr}	$V_{GE} = 0 \text{ V}$, $T_j = 125^\circ\text{C}$		0,56		mJ
	$di_F/dt = - \text{ A}/\mu\text{s}$				
Diode Rectifier					
V_F	$I_F = 25 \text{ A}$, $T_j = 25^\circ\text{C}$		1,1		V
$V_{(TO)}$	$T_j = 150^\circ\text{C}$		0,8		V
r_T	$T_j = 150^\circ\text{C}$		13		$\text{m}\Omega$
$R_{th(j-s)}$	per diode			1,7	K/W
Temperature Sensor					
R_{ts}	3 %, $T_r = 25 (100)^\circ\text{C}$		1000(1670)		Ω
Mechanical Data					
w					g
M_s	Mounting torque	2		2,5	Nm

