

SEMITOP® 3

3-phase bridge rectifier + brake chopper +3-phase bridge inverter

SK 15 DGDL 063

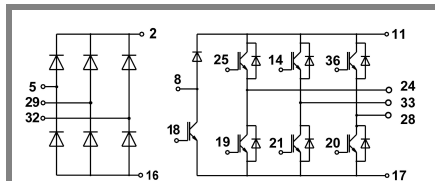
Target Data

Features

- Compact design
- One screw mounting
- Heat transfer and isolation through direct copper bonded aluminum oxide ceramic (DCB)
- N-channel homogeneous silicon structure (NPT-Non punch-through IGBT)
- High short circuit capability
- Low tail current with low temperature dependance
- Clearance and creepage distances compliant with UL508

Typical Applications

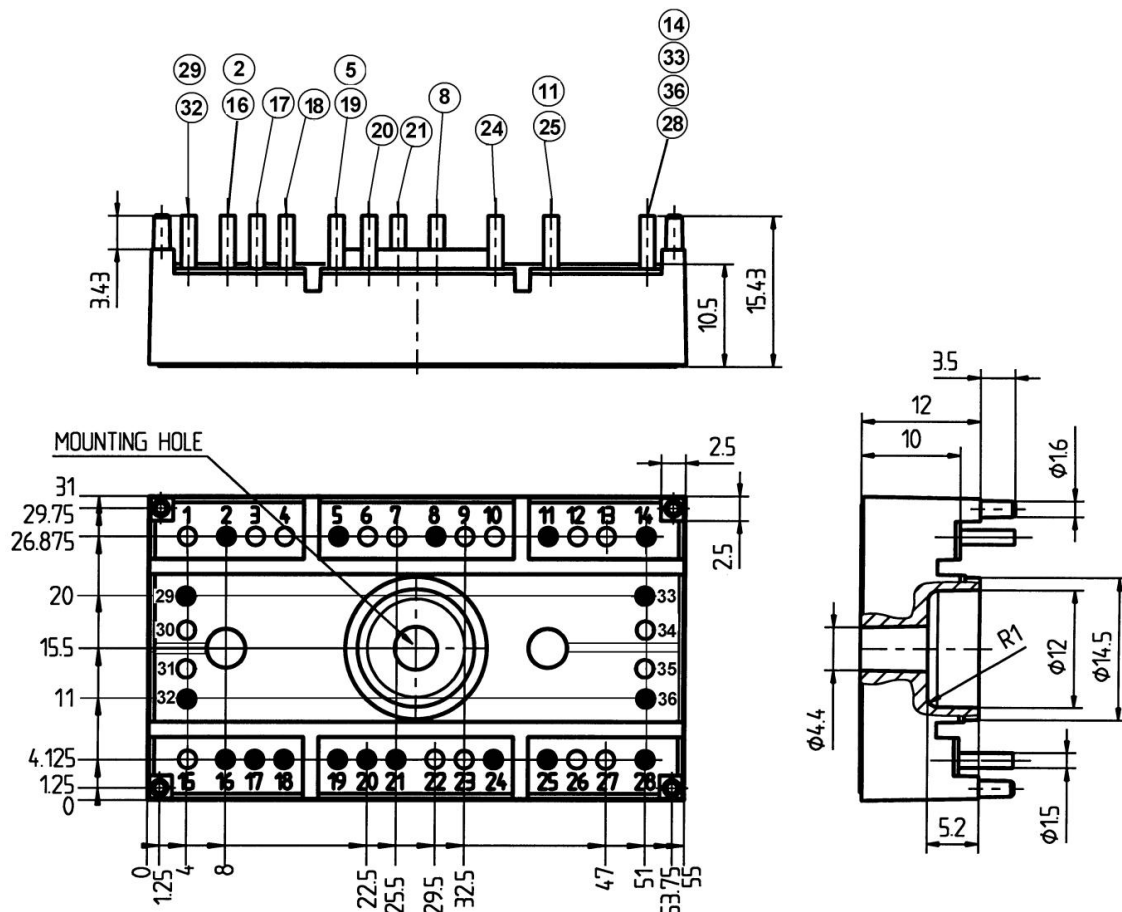
- Inverter
- Servo drives



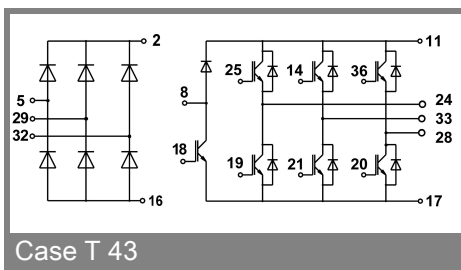
DGDL

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT Inverter (For chopper IGBT please refer to SK 10 BGD L 063)			
V_{CES}		600	V
I_C	$T_s = 25 (80)^\circ\text{C}$	20 (15)	A
I_{CM}	$T_s = 25 (80)^\circ\text{C}$, $t_p \leq 1 \text{ ms}$	40 (30)	A
V_{GES}		± 20	V
T_j		-40 ... +150	$^\circ\text{C}$
Diode - Inverter, Chopper			
$I_F = -I_C$	$T_s = 25 (80)^\circ\text{C}$	20 (15)	A
$I_{FM} = -I_{CM}$	$T_s = 25 (80)^\circ\text{C}$, $t_p \leq 1 \text{ ms}$	40 (30)	A
T_j		-40 ... +150	$^\circ\text{C}$
Rectifier			
V_{RRM}		800	V
I_{FAV} / I_{TAV}	$T_s = 80^\circ\text{C}$	25	A
I_{FSM} / I_{TSM}	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 125^\circ\text{C}$	270	A
I_t^2	$t_p = 10 \text{ ms}$, $\sin 180^\circ$, $T_j = 125^\circ\text{C}$	365	A^2s
T_j		-40 ... +150	$^\circ\text{C}$
T_{sol}	Terminals, 10s	260	$^\circ\text{C}$
T_{stg}		-40 ... +125	$^\circ\text{C}$
V_{isol}	AC, 1 min. / 1s	2500 / 3000	V

Characteristics		T _s = 25°C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT Inverter (For chopper IGBT please refer to SK 10 BGD L 063)					
V _{CEsat}	I _C = 15 A, T _j = 25 (125) °C		2,1 (2,2)		V
V _{GE(th)}	V _{GE} = V _{CE} , I _C = 0,4 mA	4,5	5,5	6,5	V
V _{CE(TO)}	T _j = °C () °C				V
r _T	T _j = °C () °C				mΩ
C _{ies}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		0,8		nF
C _{oes}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		-		nF
C _{res}	V _{CE} = V _{GE} = 0 V, f = 1 MHz		-		nF
R _{th(j-s)}	per IGBT			1,9	K/W
t _{d(on)}	under following conditions		-		ns
t _r	V _{CC} = 300 V, V _{GE} = ± 15 V		-		ns
t _{d(off)}	I _C = 15 A, T _j = 125 °C		-		ns
t _f	R _{Gon} = R _{Goff} = 68 Ω		-		ns
E _{on}	inductive load				mJ
E _{off}					mJ
Diode - Inverter, Chopper					
V _F = V _{EC}	I _F = 5 A, T _j = 25 (125) °C		1,25 (1,13)		V
V _(TO)	T _j = °C (125) °C		(0,85)		V
r _T	T _j = °C (125) °C		(55)		mΩ
R _{th(j-s)}	per diode			2,7	K/W
I _{RRM}	under following conditions		5,3		A
Q _{rr}	I _F = A, V _R = V		0,61		μC
E _{rr}	V _{GE} = 0 V, T _j = 125 °C		0,06		mJ
	di _F /dt = -200 A/μs				
Diode rectifier					
V _F	I _F = 10 A, T _j = 25 °C		1,25		V
V _(TO)	T _j = 150 °C		0,8		V
r _T	T _j = 150 °C		13		mΩ
R _{th(j-s)}	per diode			1,7	K/W
Temperatur sensor					
R _{ts}	%, T _r = () °C		()		Ω
Mechanical data					
w			30		g
M _s	Mounting torque			2,5	Nm



Case T 43 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 43

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

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