SEMITEP[®] 2

1-phase bridge rectifier
+3-phase bridge inverter

SK 8 BGD 065 E

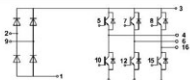
Target Data

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 dependence

Typical Applications

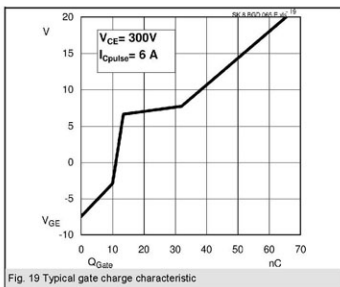
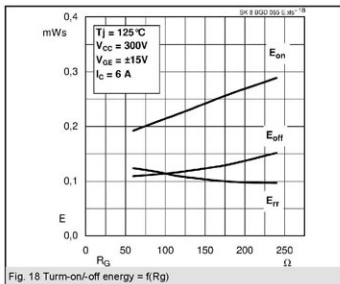
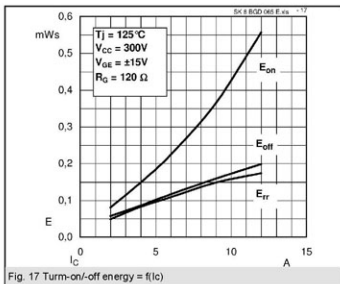
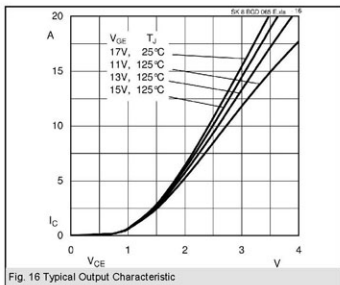
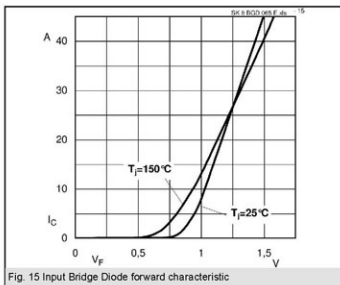
- Inverter
- Servo drives

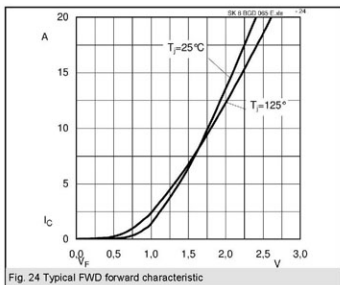
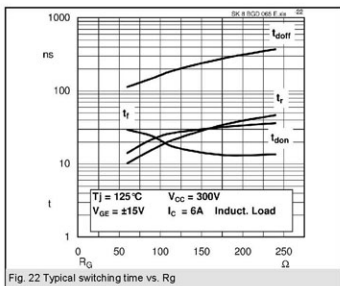
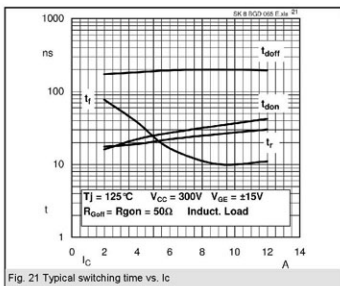


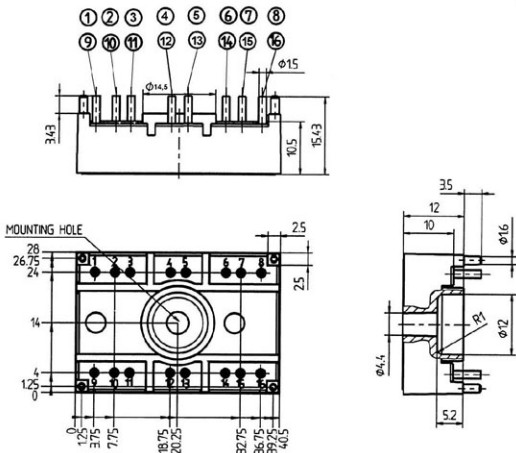
BGD

Absolute Maximum Ratings		$T_s = 25^\circ\text{C}$, unless otherwise specified	
Symbol	Conditions	Values	Units
IGBT - Inverter			
V_{CES}		600	V
I_C	$T_s = 25 (80)^\circ\text{C}$	12 (8)	A
I_{CM}	$T_s = 25 (80)^\circ\text{C}$, $t_p \leq 1$ ms	24 (16)	A
V_{GES}		± 20	V
T_j		-40 ... +150	$^\circ\text{C}$
Diode - Inverter			
I_F	$T_s = 25 (80)^\circ\text{C}$	(13)	A
$I_{FM} = -I_{CM}$	$T_s = 25 (80)^\circ\text{C}$, $t_p \leq 1$ ms	(26)	A
T_j		-40 ... +150	$^\circ\text{C}$
Rectifier			
V_{RRM}		800	V
I_{FAV} / I_{TAV}	$T_s = 80^\circ\text{C}$	20	A
I_{FSM} / I_{TSM}	$t_p = 10$ ms, $\sin 180^\circ$, $T_j = 125^\circ\text{C}$	220	A
I_T^2	$t_p = 10$ ms, $\sin 180^\circ$, $T_j = 125^\circ\text{C}$	240	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_{RSM}	AC, 1 min. / 1s	2500 / 3000	V

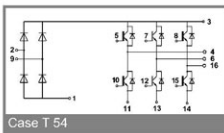
Characteristics		$T_s = 25^\circ\text{C}$, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
IGBT - Inverter					
V_{CEsat}	$I_C = 6$ A, $T_j = 25 (125)^\circ\text{C}$		2 (2,2)		V
$V_{GE(oh)}$	$V_{GE} = V_{CE}$, $I_C = 0,5$ mA	3	4	5	V
$V_{CE(TO)}$	$T_s = 25^\circ\text{C}$ (125) $^\circ\text{C}$		1.2 (1,1)		V
r_T	$T_j = 25^\circ\text{C}$ (125) $^\circ\text{C}$		133 (183)		m Ω
C_{iss}	$V_{CE} = V_{GE} = 0$ V, $f = 1$ MHz		-		nF
C_{oss}	$V_{CE} = V_{GE} = 0$ V, $f = 1$ MHz		-		nF
C_{res}	$V_{CE} = 25$ V, $V_{GE} = 0$ V, $f = 1$ MHz		0,03		nF
$R_{th(j-s)}$	per IGBT			2,6	K/W
$t_{i(on)}$	under following conditions		20		ns
t_r	$V_{CC} = 300$ V, $V_{GE} = \pm 15$ V		25		ns
$t_{i(off)}$	$I_C = 6$ A, $T_j = 125^\circ\text{C}$		145		ns
t_f	$R_{Gon} = R_{Goff} = 120 \Omega$		25		ns
E_{on}	inductive load		0,22		mJ
E_{off}			0,12		mJ
Diode - Inverter					
$V_F = V_{EC}$	$I_F = 8$ A, $T_j = 25 (125)^\circ\text{C}$		1,35		V
$V_{(TO)}$	$T_j = ^\circ\text{C}$ (125) $^\circ\text{C}$		(0,8)	(0,9)	V
r_T	$T_j = ^\circ\text{C}$ (125) $^\circ\text{C}$		(44)		m Ω
$R_{th(j-s)}$	per diode			2,7	K/W
I_{FRM}	under following conditions		4,2		A
O_{rr}	$I_F = 8$ A, $V_R = 300$ V		0,65		μC
E_{rr}	$V_{GE} = 0$ V, $T_j = 25^\circ\text{C}$				mJ
	$di_{F,th} = -120$ A/ μs				
Diode rectifier					
V_F	$I_F = 20$ A, $T_j = 25^\circ\text{C}$		1,1		V
$V_{(TO)}$	$T_j = 150^\circ\text{C}$		0,85		V
r_T	$T_j = 150^\circ\text{C}$		15		m Ω
$R_{th(j-s)}$	per diode			2,15	K/W
Temperature sensor					
R_{ts}	%, $T_r = ()^\circ\text{C}$		0		Ω
Mechanical data					
w			19		g
M_s	Mounting torque		2		Nm







Case T 54 (Suggested hole diameter, in the PCB, for solder pins and plastic mounting pins: 2mm)



Case T 54

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

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