



SEMIPACK®

Fast Diode Modules

SKKE800F17

Features*

- CAL4 = Soft switching 4. Generation CAL-Diode
- Heat transfer through aluminum oxide DCB ceramic insulated metal baseplate
- Small recovery charge
- UL recognized, file no. E63532

Typical Applications

- Freewheeling diodes for IGBT
- Freewheeling diode for inductive loads
- Brake choppers
- Inverters and DC choppers
- AC motor control
- Boost choppers

Remarks

- Case temperature limited to $T_c = 125^\circ\text{C}$ max.
- Recommended $T_{j,op} = -40 \dots +150^\circ\text{C}$
- Product reliability results valid for $T_j = 150^\circ\text{C}$

Absolute Maximum Ratings				
Symbol	Conditions		Values	Unit
Diode				
V _{RRM}	T _j = 25 °C		1700	V
I _F	T _j = 175 °C	T _c = 25 °C	953	A
		T _c = 100 °C	601	A
I _{FRM}			1600	A
I _{FSM}	10 ms	T _j = 25 °C	4160	A
		T _j = 150 °C	3712	A
i ² t	10 ms	T _j = 25 °C	86528	A ² s
		T _j = 150 °C	68895	A ² s
T _j			-40 ... 175	°C
Module				
T _{stg}			-40 ... 125	°C
V _{isol}	a.c.; 50 Hz; r.m.s.	1 min	4000	V
		1 s	4800	V

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Diode						
V _F	I _F = 800 A	T _j = 25 °C		2.00	2.40	V
	chiplevel	T _j = 150 °C		2.15	2.57	V
V _{F0}	chiplevel	T _j = 25 °C		1.32	1.56	V
		T _j = 150 °C		1.08	1.22	V
r _F	chiplevel	T _j = 25 °C		0.86	1.05	mΩ
		T _j = 150 °C		1.34	1.69	mΩ
I _R	V _R = V _{RRM}	T _j = 25 °C			0.68	mA
		T _j = 150 °C			200	mA
Q _{rr}	I _F = 800 A di/dt _{off} = 4000 A/μs V _R = 1200 V	T _j = 150 °C		210		μC
I _{RRM}		T _j = 150 °C		400		A
t _{rr}		T _j = 150 °C		1.2		μs
E _{rr}		T _j = 150 °C		140		mJ
R _{th(j-c)}	per diode				0.058	K/W
R _{th(c-s)}	per diode/module (λ _{grease} =0.81 W/(m*K))			0.045		K/W
R _{th(c-s)}	per diode/module, pre-applied phase change material			-		K/W
Module						
L _{CE}				15		nH
R _{CC'+EE'}	measured per switch	T _C = 25 °C		0.23		mΩ
		T _C = 125 °C		0.3		mΩ
M _s	to heat sink M6		3		5	Nm
M _t	to terminals M6		2.5		5	Nm
a					5 * 9.81	m/s ²
w				330		g



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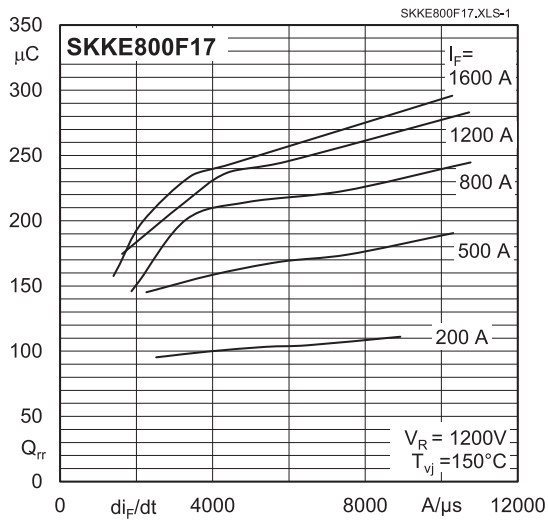


Fig. 1: Typ. recovery charge vs. current decrease

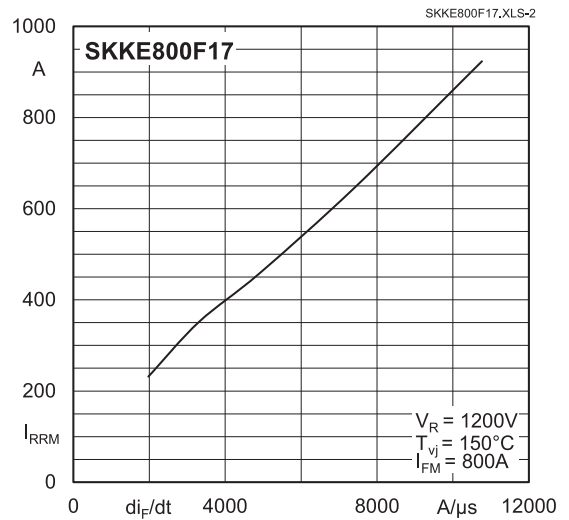


Fig. 2: Peak recovery current vs. current decrease

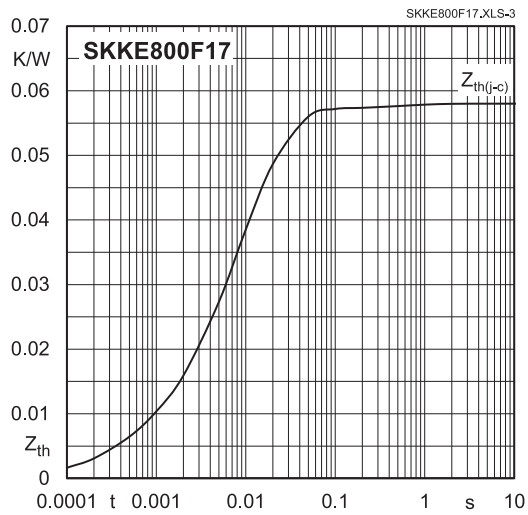


Fig. 3: Transient thermal impedance vs. time

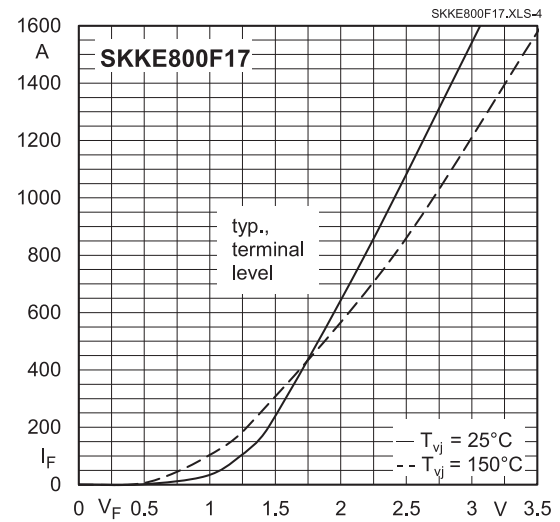


Fig. 4: Forward characteristics

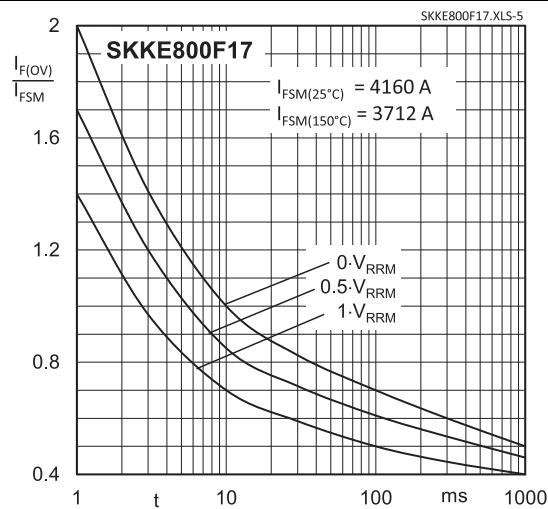


Fig. 5: Surge overload current vs. time

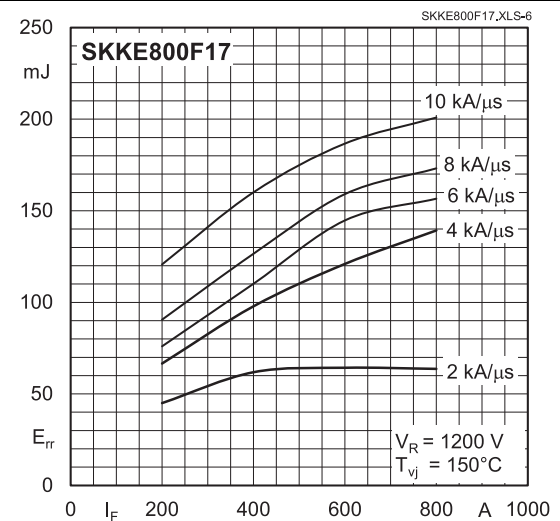
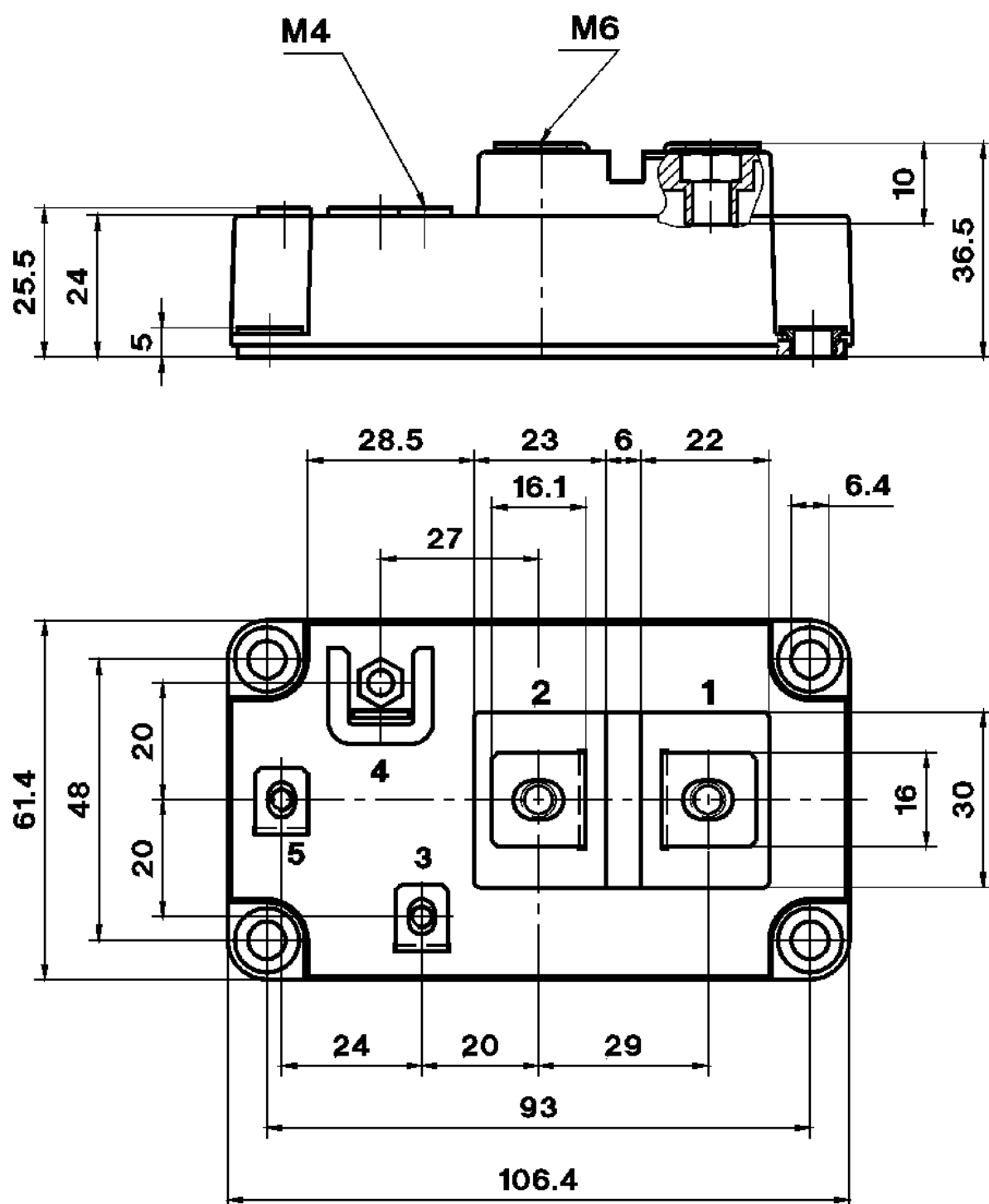


Fig. 6: Typ. turn-off energy dissipation per pulse

CASED59



SEMITRANS 4



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This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

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