SKKE800F17

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

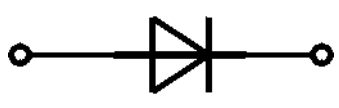
- Case temperature limited to T_c = 125°C max.
- Recommended $T_{j,op}$ = -40 ... +150°C
- Product reliability results valid for T_j = 150°C

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^2t	10 ms	T_j = 25 °C	86528	A^2s
		T_j = 150 °C	68895	A^2s
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 chiplevel	T_j = 25 °C		2.00	2.40	V
		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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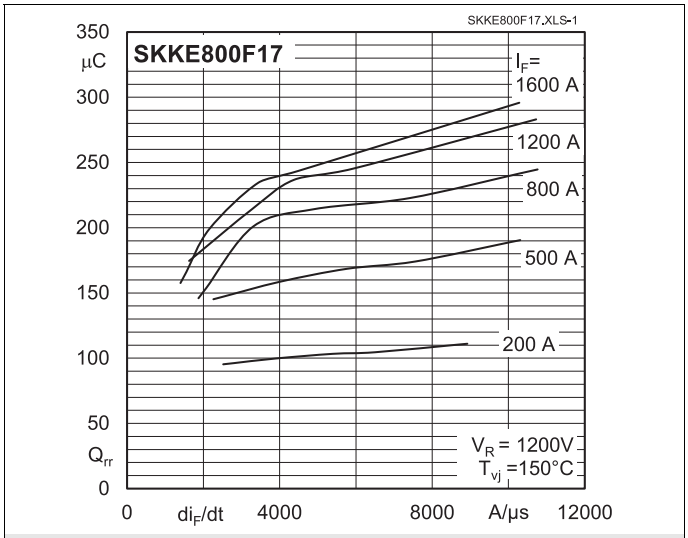

Fig. 1: Typ. recovery charge vs. current decrease

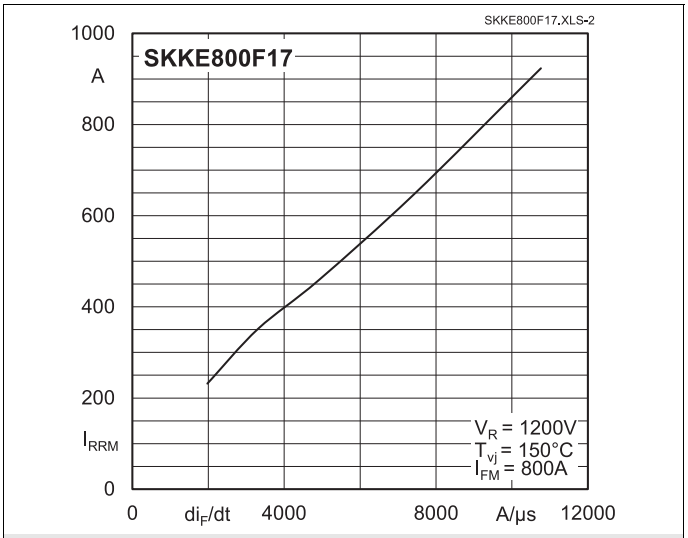

Fig. 2: Peak recovery current vs. current decrease

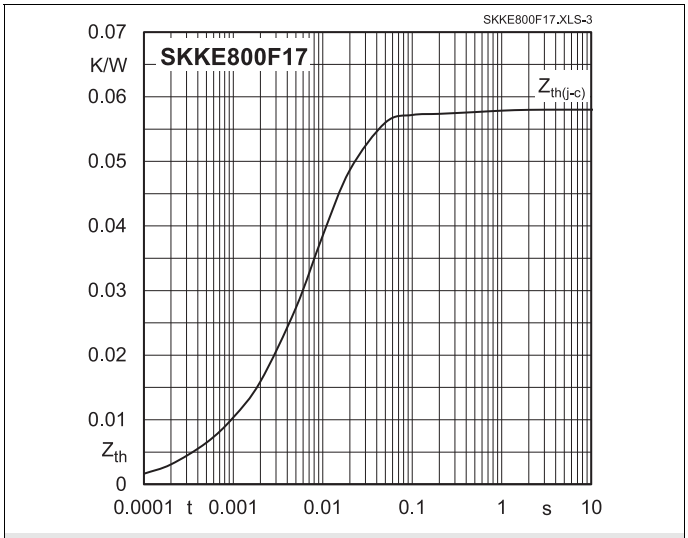

Fig. 3: Transient thermal impedance vs. time

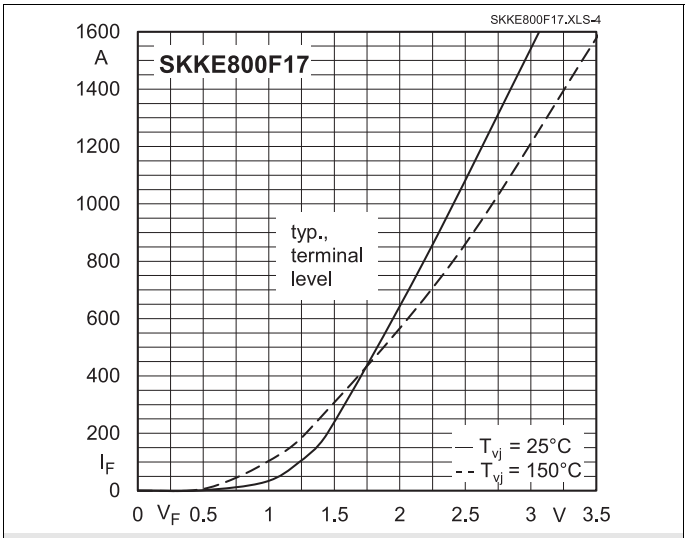

Fig. 4: Forward characteristics

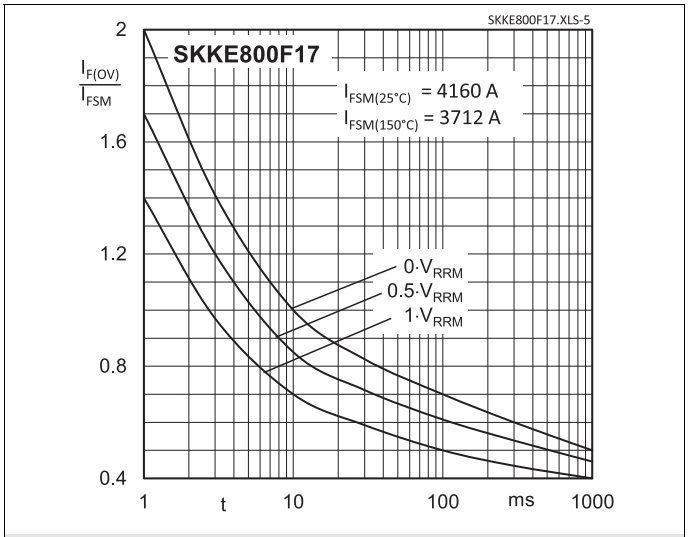

Fig. 5: Surge overload current vs. time

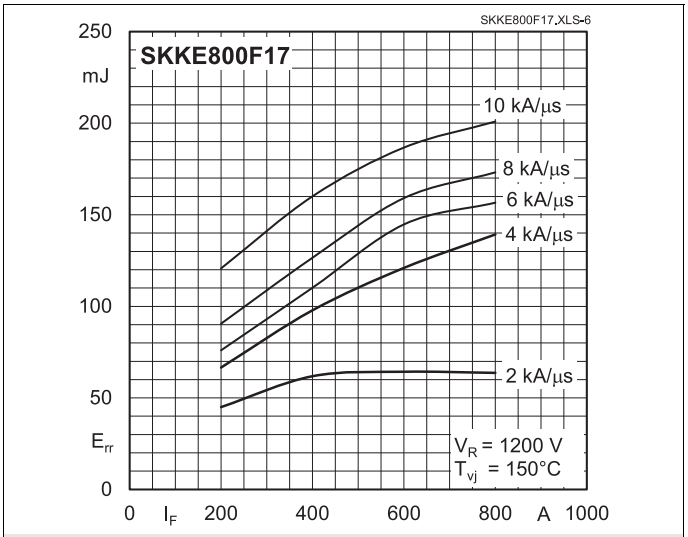

Fig. 6: Typ. turn-off energy dissipation per pulse

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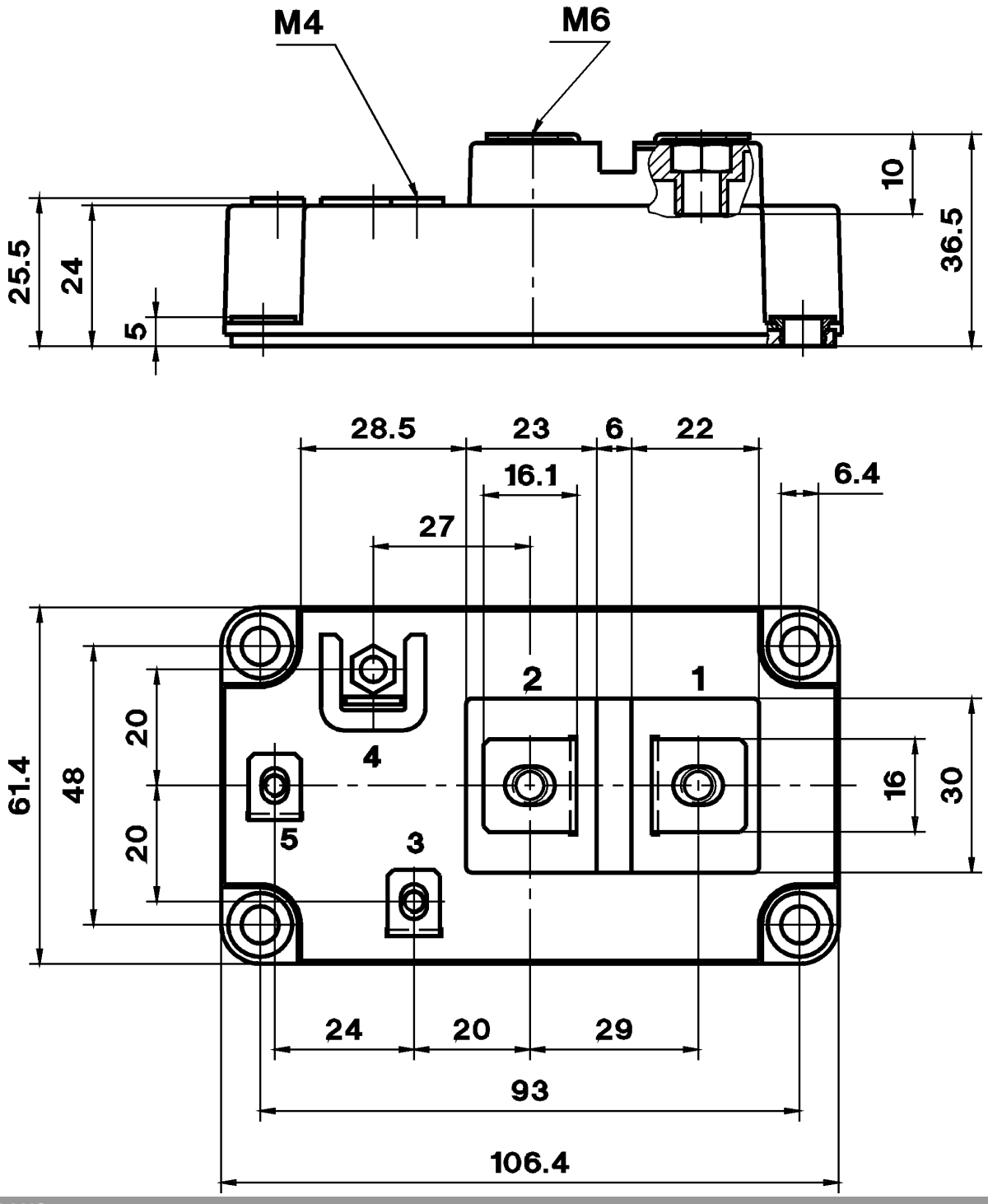

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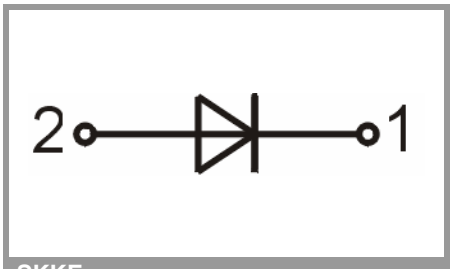

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This is an electrostatic discharge sensitive device (ESDS) due to international standard IEC 61340.

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