

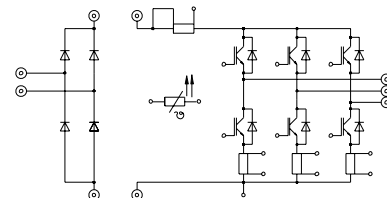
Absolute Maximum Ratings			
Symbol	Conditions <sup>1)</sup>	Values	Units
Inverter			
V <sub>CES</sub>		600	V
V <sub>GES</sub>		± 20	V
I <sub>C</sub>	T <sub>heatsink</sub> = 25 / 80 °C	11 / 8	A
I <sub>CM</sub>	t <sub>p</sub> < 1 ms; T <sub>heatsink</sub> = 25 / 80 °C	22 / 16	A
I <sub>F</sub> = -I <sub>C</sub>	T <sub>heatsink</sub> = 25 / 80 °C	20 / 15	A
I <sub>FM</sub> = -I <sub>CM</sub>	t <sub>p</sub> < 1 ms; T <sub>heatsink</sub> = 25 / 80 °C	40 / 30	A
Bridge Rectifier			
V <sub>R<sub>RM</sub></sub>		800	V
I <sub>D</sub>	T <sub>heatsink</sub> = 80 °C	12	A
I <sub>FSM</sub>	t <sub>p</sub> = 10 ms; sin. 180 °, T <sub>j</sub> = 25 °C	370	A
I <sup>2</sup> t	t <sub>p</sub> = 10 ms; sin. 180 °, T <sub>j</sub> = 25 °C	680	A <sup>2</sup> s
T <sub>j</sub>		- 40 ... + 150	°C
T <sub>stg</sub>		- 40 ... + 125	°C
V <sub>isol</sub>	AC, 1 min.	2500	V

**MiniSKiiP 1**  
**SEMIKRON integrated intelligent Power**  
**SKiiP 10 NEC 063 T1**  
**SKiiP 10 NEC 063 I T1** <sup>3)</sup>  
**1-phase bridge rectifier +**  
**3-phase bridge inverter**

Case M1



Characteristics					
Symbol	Conditions <sup>1)</sup>	min.	typ.	max.	Units
IGBT - Inverter					
V <sub>CESat</sub>	I <sub>C</sub> = 5 A T <sub>j</sub> = 25 (125) °C	-	1,8(2,1)	2,3(2,6)	V
t <sub>d(on)</sub>	V <sub>CC</sub> = 300 V; V <sub>GE</sub> = ± 15 V	-	60	-	ns
t <sub>r</sub>	I <sub>C</sub> = 5 A; T <sub>j</sub> = 125 °C	-	60	-	ns
t <sub>d(off)</sub>	R <sub>gon</sub> = R <sub>goff</sub> = 200 Ω	-	260	-	ns
t <sub>f</sub>	inductive load	-	10	-	ns
E <sub>on</sub> + E <sub>off</sub>		-	0,6	-	mJ
C <sub>ies</sub>	V <sub>CE</sub> = 25 V; V <sub>GE</sub> = 0 V, 1 MHz	-	0,3	-	nF
R <sub>thjh</sub>	per IGBT	-	-	3,0	K/W
Diode <sup>2)</sup> - Inverter					
V <sub>F</sub> = V <sub>EC</sub>	I <sub>F</sub> = 10 A T <sub>j</sub> = 25 (125) °C	-	1,45(1,4)	1,7(1,7)	V
V <sub>TO</sub>	T <sub>j</sub> = 125 °C	-	0,85	0,9	V
r <sub>T</sub>	T <sub>j</sub> = 125 °C	-	55	80	mΩ
I <sub>R<sub>RM</sub></sub>	I <sub>F</sub> = 10 A, V <sub>R</sub> = - 300 V	-	6,5	-	A
Q <sub>rr</sub>	di <sub>F</sub> /dt = - 200 A/μs	-	1	-	μC
E <sub>off</sub>	V <sub>GE</sub> = 0 V, T <sub>j</sub> = 125 °C	-	0,1	-	mJ
R <sub>thjh</sub>	per diode	-	-	2,7	K/W
Diode - Rectifier					
V <sub>F</sub>	I <sub>F</sub> = 25 A T <sub>j</sub> = 25 °C	-	1,2	-	V
R <sub>thjh</sub>	per diode	-	-	1,7	K/W
Temperature Sensor					
R <sub>TS</sub>	T = 25 / 100 °C		1000 / 1670		Ω
Shunts (SKiiP 10 NEC 063 I T1)					
R <sub>cs(dc)</sub>	5 % <sup>4)</sup>		47		mΩ
R <sub>cs(ac)</sub>	1 %		22		mΩ
Mechanical Data					
M <sub>1</sub>	Mounting torque	2	-	2,5	Nm
Case			M1		



UL recognized file no. E63532

- fast NPT IGBTs

- <sup>1)</sup> T<sub>heatsink</sub> = 25 °C, unless otherwise specified
- <sup>2)</sup> CAL = Controlled Axial Lifetime Technology (soft and fast recovery)
- <sup>3)</sup> With integrated DC and AC shunts
- <sup>4)</sup> Accuracy of pure shunt, please note that for DC shunt no separate sensing contact is used.

This technical information specifies semiconductor devices but promises no characteristics. No warranty or guarantee expressed or implied is made regarding delivery, performance or suitability.

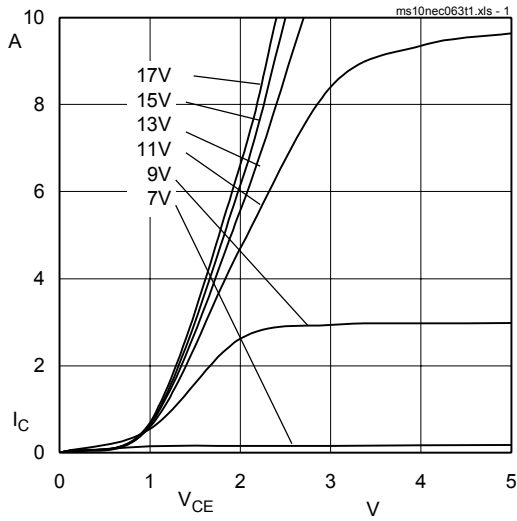


Fig. 1 Typ. output characteristic,  $t_p = 80 \mu s$ ;  $25 \text{ }^\circ\text{C}$

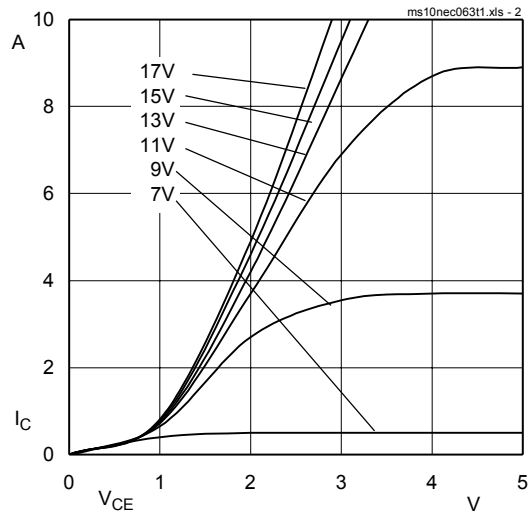


Fig. 2 Typ. output characteristic,  $t_p = 80 \mu s$ ;  $125 \text{ }^\circ\text{C}$

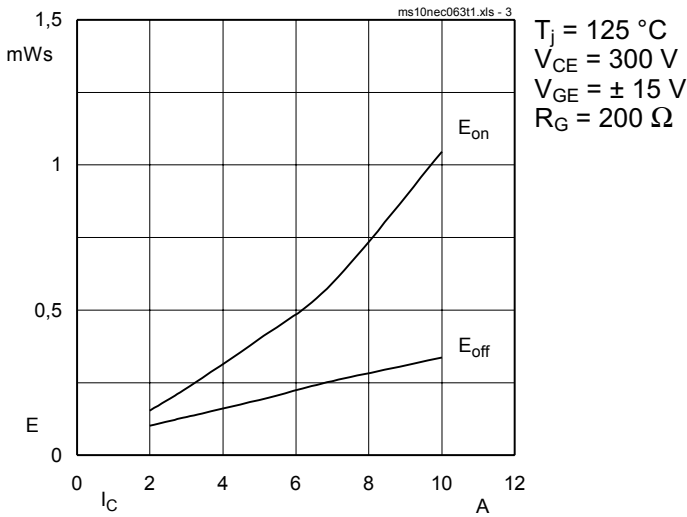


Fig. 3 Turn-on /-off energy =  $f(I_c)$

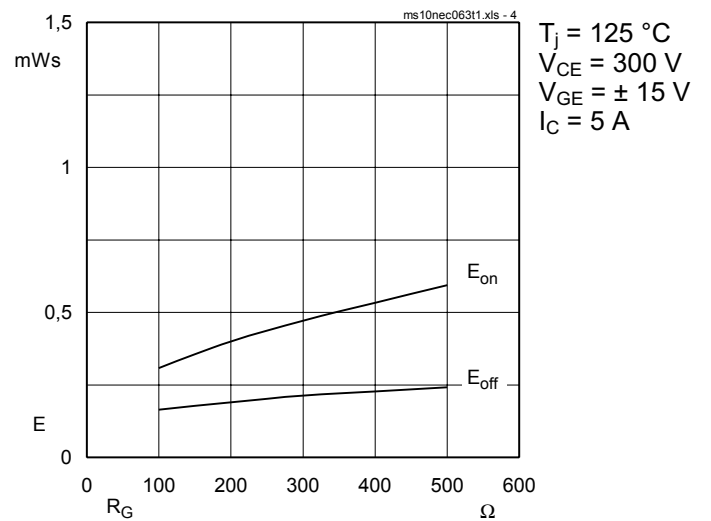


Fig. 4 Turn-on /-off energy =  $f(R_G)$

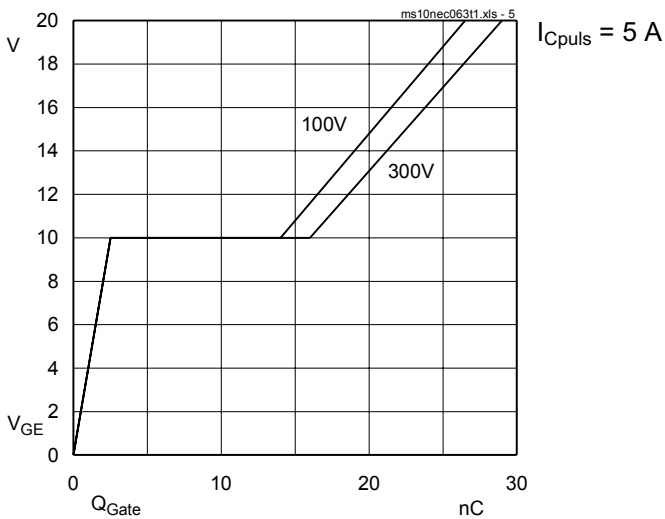


Fig. 5 Typ. gate charge characteristic

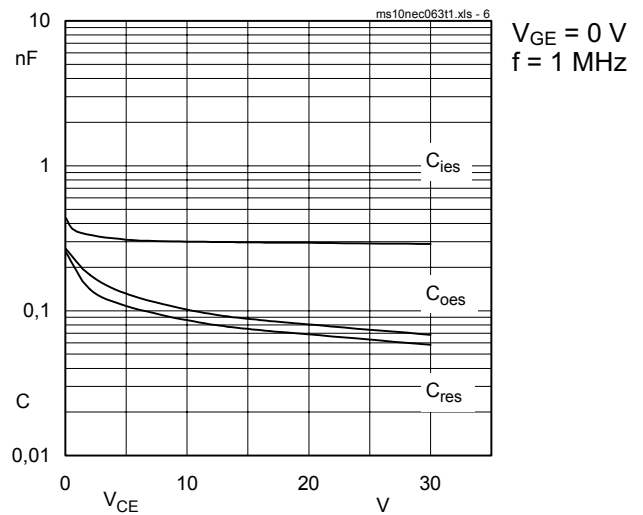


Fig. 6 Typ. capacitances vs.  $V_{CE}$