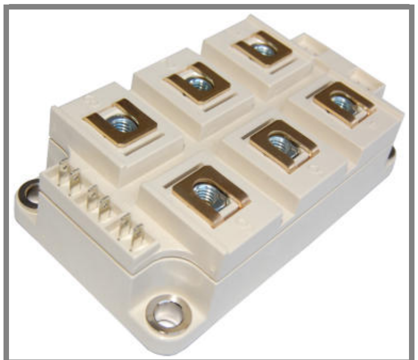
SKM 300 MLI 066 T



SEMITRANS® 5

Trench IGBT Modules

SKM 300 MLI 066 T

Target Data

Features

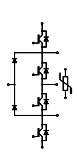
- Homogeneous Si
- Trench = Trenchgate technology
- $V_{CE(sat)}$ with positive temperature coefficient
- Integrated NTC temperature sensor

Typical Applications

- UPS
- 3 Level Inverter

Remarks

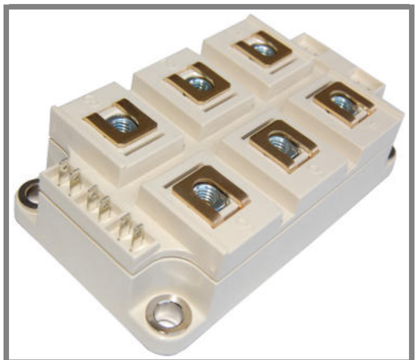
- Case temperature limited to T_c =125°C max, recommended T_{op} = -40..+150°C



MLI-T

Absolute Maximum Ratings		T_{case} = 25°C, unless otherwise specified		
Symbol	**Conditions**		**Values**	**Units**
IGBT				
V_{CES}	T_j = 25 °C		600	V
I_C	T_j = 175 °C	T_c = 25 °C	400	A
		T_c = 80 °C	300	A
I_{CRM}	I_{CRM}=2xI_{Cnom}		600	A
V_{GES}			± 20	V
t_{psc}	V_{CC} = 360 V; V_{GE} ≤ 15 V; VCES < 600 V	T_j = 150 °C	6	µs
Inverse Diode				
I_F	T_j = 150 °C	T_c = 25 °C	324	A
		T_c = 80 °C	211	A
I_{FRM}	I_{FRM}=2xI_{Fnom}		420	A
I_{FSM}	t_p = 10 ms; half sine wave	T_j = 150 °C	2100	A
Freewheeling Diode				
I_F	T_j = 150 °C	T_c = 25 °C	324	A
		T_c = 80 °C	211	A
I_{FRM}	I_{FRM}=2xI_{Fnom}		420	A
I_{FSM}	t_p = 10 ms; half sine wave	T_j = 150 °C	2100	A
Module				
$I_{t(RMS)}$			500	A
T_{vj}			- 40 ... + 175	°C
T_{stg}			- 40 ... + 125	°C
V_{isol}	AC, 1 min.		2500	V

Characteristics		T_{case} = 25°C, unless otherwise specified				
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
IGBT						
$V_{GE(th)}$	V_{GE} = V_{CE}, I_C = 4,8 mA		5	5,8	6,5	V
I_{CES}	V_{GE} = 0 V, V_{CE} = V_{CES}	T_j = 25 °C			0,015	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = 20 V	T_j = 25 °C			1200	nA
V_{CE0}		T_j = 25 °C		0,9	1	V
		T_j = 150 °C		0,85	0,9	V
r_{CE}	V_{GE} = 15 V	T_j = 25°C		1,8	3	mΩ
		T_j = 150°C		2,7	3,8	mΩ
$V_{CE(sat)}$	I_{Cnom} = 300 A, V_{GE} = 15 V	T_j = 25°$C_{chiplev.}$		1,45	1,9	V
		T_j = 150°$C_{chiplev.}$		1,7	2,1	V
C_{ies}				18,4		nF
C_{oes}	V_{CE} = 25, V_{GE} = 0 V	f = 1 MHz		1,14		nF
C_{res}				0,54		nF
R_{Gint}	T_j = °C			1		Ω
$t_{d(on)}$						ns
t_r	R_{Gon} = 1 Ω	V_{CC} = 300V				ns
E_{on}		I_C= 300A		1,56		mJ
$t_{d(off)}$	R_{Goff} = 2 Ω	T_j = 150 °C				ns
t_f		V_{GE} = -8V/+15V				ns
E_{off}				9,4		mJ
$R_{th(j-c)}$	per IGBT			0,15		K/W



SEMITRANS® 5

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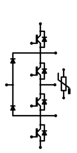
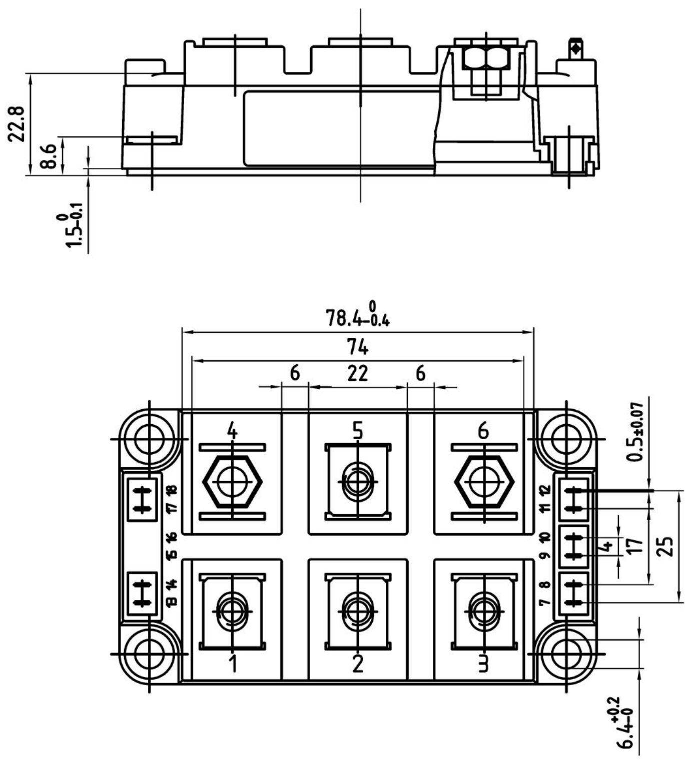


MLI-T

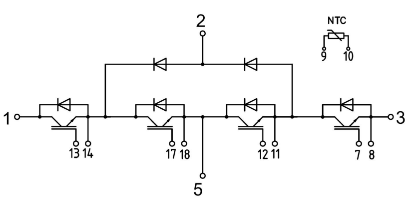
Characteristics						
Symbol	**Conditions**		**min.**	**typ.**	**max.**	**Units**
Inverse Diode						
$V_F = V_{EC}$	I_{Fnom} = 245 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,35	1,6	V
		T_j = 125 °$C_{chiplev.}$		1,35	1,6	V
V_{F0}		T_j = 25 °C		1	1,1	V
		T_j = 125 °C		0,9	1	V
r_F		T_j = 25 °C		1,42	2	mΩ
		T_j = 125 °C		1,8	2,4	mΩ
I_{RRM}	I_F = 245 A	T_j = 125 °C				A
Q_{rr}						µC
E_{rr}	V_{GE} = -8 V; V_{CC} = 300 V					mJ
$R_{th(j-c)D}$	per diode			0,26		K/W
Free-wheeling diode (Neutral Clamp Diode)						
$V_F = V_{EC}$	I_{Fnom} = 245 A; V_{GE} = 0 V	T_j = 25 °$C_{chiplev.}$		1,35	1,6	V
		T_j = 125 °$C_{chiplev.}$		1,35	1,6	V
V_{F0}		T_j = 25 °C		1	1,1	V
		T_j = 125 °C		0,9	1	V
r_F		T_j = 25 °C		1,42	2	V
		T_j = 125 °C		1,8	2,4	V
I_{RRM}	I_F = 245 A	T_j = 125 °C				A
Q_{rr}						µC
E_{rr}	V_{GE} = 0 V; V_{CC} = 600 V			5		mJ
$R_{th(j-c)FD}$	per diode			0,26		K/W
M_s	to heat sink M6		3		5	Nm
M_t	to terminals M6		2,5		5	Nm
w					310	g
Temperature sensor						
R_{100}	T_s=100°C (R_{25}=5kΩ)			493±5%		Ω
						K

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

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



Case D60



MLI-T Case D60

