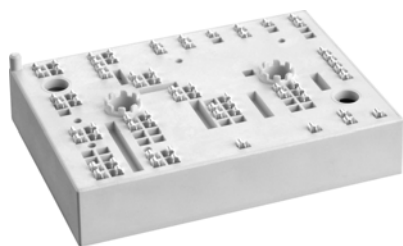


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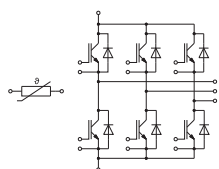
SKiiP 37AC12T7V1

Features*

- 1200V Generation 7 IGBTs (T7)
- Robust and soft switching freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

Remarks

- Max. case temperature limited to $T_C = T_S = 125\text{ °C}$
- Product reliability results valid for $T_j \leq 150\text{ °C}$; $T_{j,op} > 150\text{ °C}$ during overload (Details see AN19-002)
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AC

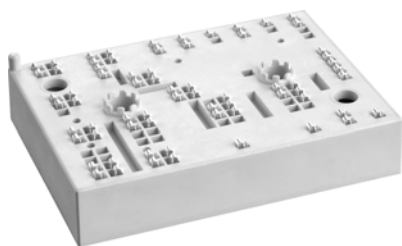
Absolute Maximum Ratings

Symbol	Conditions	Values	Unit
Inverter - IGBT			
V_{CES}		1200	V
I_C	P12 (reference)	$T_s = 70\text{ °C}$	A
	$T_j = 175\text{ °C}$	$T_s = 100\text{ °C}$	A
I_C	HPTP	$T_s = 70\text{ °C}$	A
	$T_j = 175\text{ °C}$	$T_s = 100\text{ °C}$	A
I_{Cnom}		75	A
I_{CRM}		150	A
V_{GES}		-20 ... 20	V
t_{psc}	$V_{CC} = 800\text{ V}$ $V_{GE} \leq 15\text{ V}$ $V_{CES} \leq 1200\text{ V}$	$T_j = 175\text{ °C}$	μs
T_j		-40 ... 175	°C
Inverse - Diode			
V_{RRM}	$T_j = 25\text{ °C}$	1200	V
I_F	P12 (reference)	$T_s = 70\text{ °C}$	A
	$T_j = 175\text{ °C}$	$T_s = 100\text{ °C}$	A
I_F	HPTP	$T_s = 70\text{ °C}$	A
	$T_j = 175\text{ °C}$	$T_s = 100\text{ °C}$	A
I_{FRM}		150	A
I_{FSM}	$t_p = 10\text{ ms}$, sin 180°, $T_j = 150\text{ °C}$	430	A
T_j		-40 ... 175	°C
Module			
$I_{t(RMS)}$	$T_{terminal} = 80\text{ °C}$, 20 A per spring	160	A
T_{stg}	module without TIM	-40 ... 125	°C
V_{isol}	AC sinus 50 Hz, $t = 1\text{ min}$	2500	V

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
Inverter - IGBT					
$V_{CE(sat)}$	$I_C = 75\text{ A}$	$T_j = 25\text{ °C}$	1.55	1.70	V
	$V_{GE} = 15\text{ V}$	$T_j = 150\text{ °C}$	1.69	1.84	V
	chiplevel	$T_j = 175\text{ °C}$	1.72	1.87	V
V_{CE0}		$T_j = 25\text{ °C}$	1.00	1.08	V
	chiplevel	$T_j = 150\text{ °C}$	0.85	0.93	V
		$T_j = 175\text{ °C}$	0.75	0.83	V
r_{CE}	$V_{GE} = 15\text{ V}$	$T_j = 25\text{ °C}$	7.3	8.3	mΩ
	chiplevel	$T_j = 150\text{ °C}$	11	12	mΩ
		$T_j = 175\text{ °C}$	13	14	mΩ
$V_{GE(th)}$	$V_{GE} = V_{CE}$, $I_C = 1.7\text{ mA}$	5.15	5.8	6.45	V
I_{CES}	$V_{GE} = 0\text{ V}$, $V_{CE} = 1200\text{ V}$, $T_j = 25\text{ °C}$			1	mA
C_{ies}	$V_{CE} = 25\text{ V}$	$f = 1\text{ MHz}$	15.10		nF
C_{oes}	$V_{GE} = 0\text{ V}$	$f = 1\text{ MHz}$	0.19		nF
C_{res}		$f = 1\text{ MHz}$	0.54		nF
Q_G	$V_{GE} = -8\text{ V} \dots +15\text{ V}$		1050		nC
R_{Gint}	$T_j = 25\text{ °C}$		2.0		Ω

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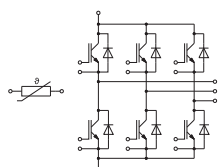
SKiiP 37AC12T7V1

Features*

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- Robust and soft switching freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

Remarks

- Max. case temperature limited to $T_C = T_S = 125\text{ °C}$
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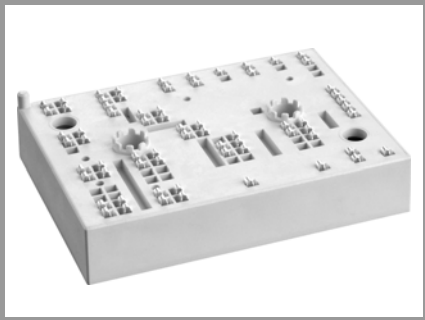


AC

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverter - IGBT						
t _{d(on)}	V _{CC} = 600 V I _C = 75 A R _{G on} = 2.3 Ω R _{G off} = 2.3 Ω V _{GE} = +15/-15 V @ T _j = 150 °C: di/dt _{on} = 1940 A/μs di/dt _{off} = 780 A/μs dv/dt = 3650 V/μs	T _j = 25 °C		137		ns
		T _j = 150 °C		142		ns
		T _j = 175 °C		142		ns
t _r		T _j = 25 °C		35		ns
		T _j = 150 °C		41		ns
		T _j = 175 °C		44		ns
E _{on}		T _j = 25 °C		6.6		mJ
		T _j = 150 °C		9.3		mJ
		T _j = 175 °C		9.9		mJ
t _{d(off)}		T _j = 25 °C		250		ns
		T _j = 150 °C		340		ns
		T _j = 175 °C		365		ns
t _f		T _j = 25 °C		56		ns
		T _j = 150 °C		86		ns
		T _j = 175 °C		103		ns
E _{off}		T _j = 25 °C		4.7		mJ
	T _j = 150 °C		8.1		mJ	
	T _j = 175 °C		8.8		mJ	
R _{th(j-s)}	per IGBT, P12 (reference)			0.68		K/W
R _{th(j-s)}	per IGBT, HPTP			0.53		K/W

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
V _F = V _{EC}	I _F = 75 A	T _j = 25 °C		2.17	2.49	V
	V _{GE} = 0 V	T _j = 150 °C		2.11	2.42	V
	chiplevel	T _j = 175 °C		1.96	2.27	V
V _{F0}		T _j = 25 °C		1.30	1.50	V
	chiplevel	T _j = 150 °C		0.90	1.10	V
		T _j = 175 °C		0.82	0.98	V
r _F		T _j = 25 °C		12	13	mΩ
	chiplevel	T _j = 150 °C		16	18	mΩ
		T _j = 175 °C		15	17	mΩ
I _{RRM}		T _j = 25 °C		50		A
		T _j = 150 °C		67		A
	I _F = 75 A	T _j = 175 °C		80		A
Q _{rr}	V _{GE} = +15/-15 V	T _j = 25 °C		4		μC
	V _{CC} = 600 V	T _j = 150 °C		11.6		μC
	@ T _j = 150 °C:	T _j = 175 °C		12.2		μC
E _{rr}	di/dt _{off} = 1930 A/μs	T _j = 25 °C		1.3		mJ
		T _j = 150 °C		4.3		mJ
		T _j = 175 °C		5.7		mJ
R _{th(j-s)}	per Diode, P12 (reference)			0.77		K/W
R _{th(j-s)}	per Diode, HPTP			0.62		K/W
Module						
L _{CE}				-		nH
M _s	to heat sink		2		2.5	Nm
w				82		g

SKiiP 37AC12T7V1



MiniSKiiP® 3

Characteristics					
Symbol	Conditions	min.	typ.	max.	Unit
Temperature Sensor					
R_{100}	$T_r=100^{\circ}\text{C}$ ($R_{25}=1000\Omega$)		$1670 \pm 3\%$		Ω
$R_{(T)}$	$R_{(T)}=1000\Omega[1+A(T-25^{\circ}\text{C})+B(T-25^{\circ}\text{C})^2]$, $A = 7.635 \cdot 10^{-3}^{\circ}\text{C}^{-1}$, $B = 1.731 \cdot 10^{-5}^{\circ}\text{C}^{-2}$				

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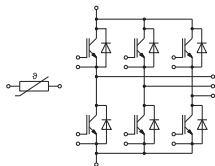
SKiiP 37AC12T7V1

Features*

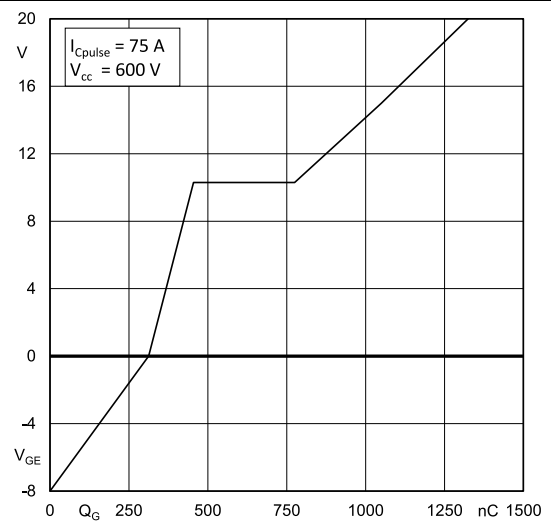
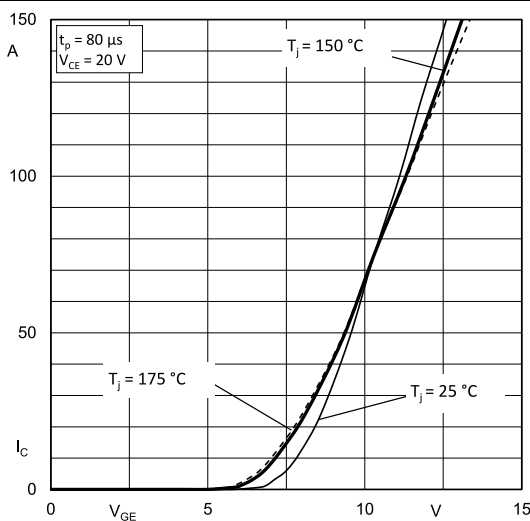
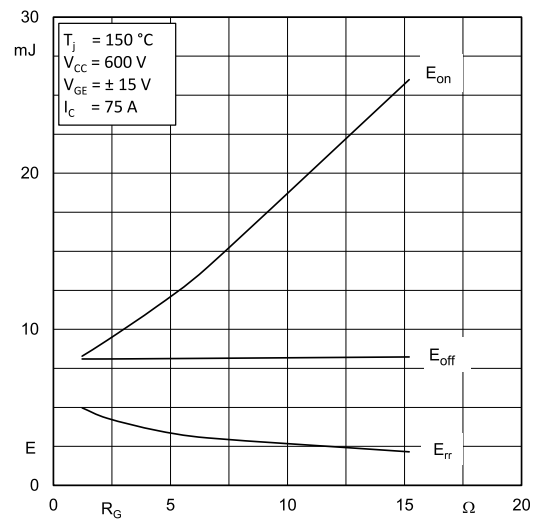
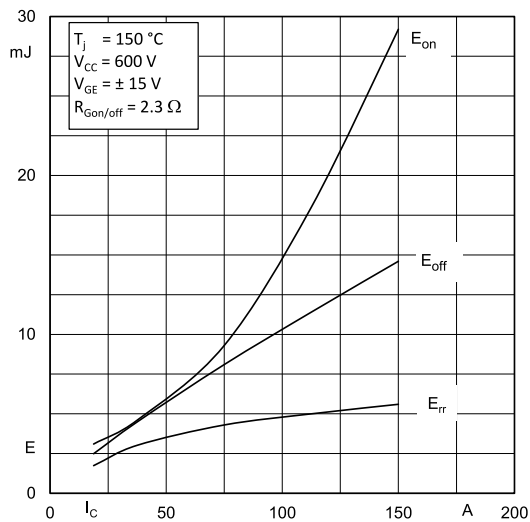
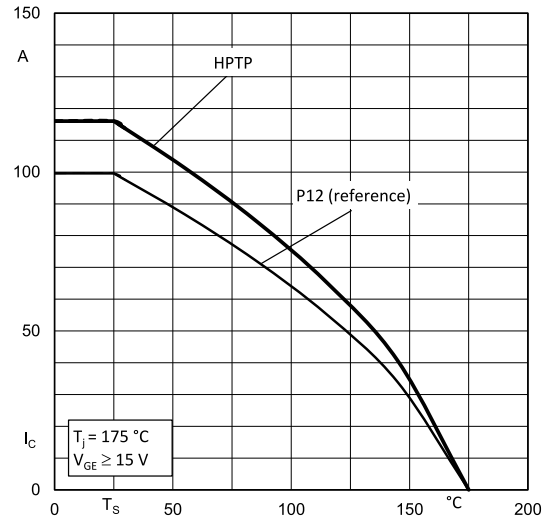
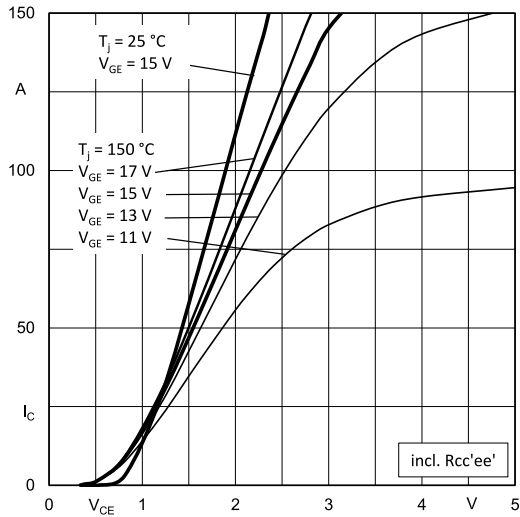
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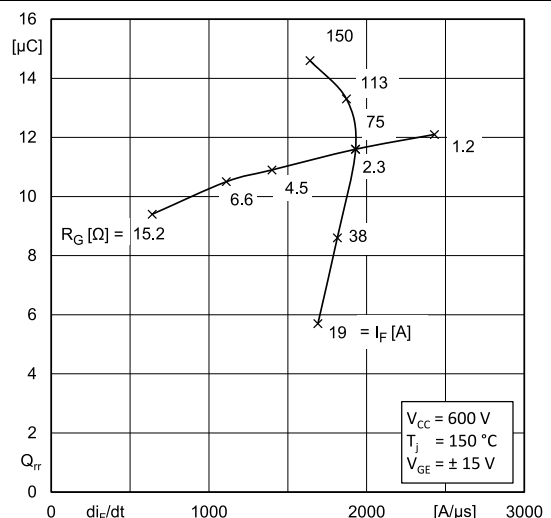
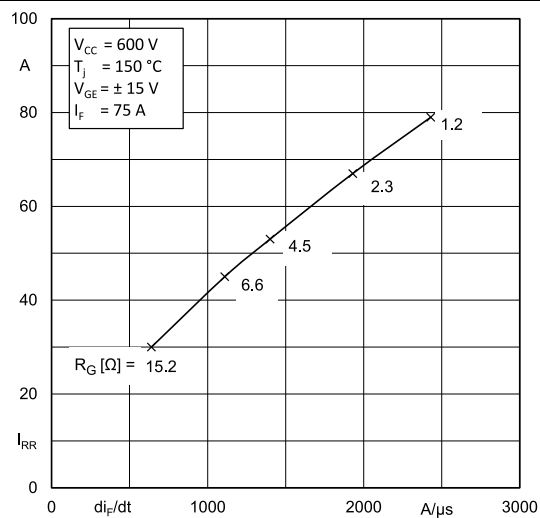
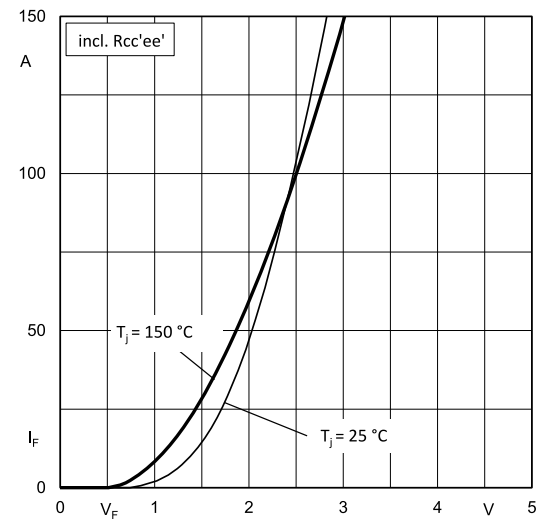
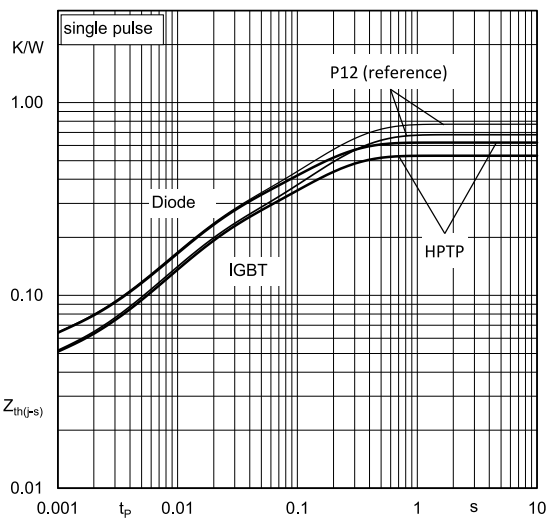
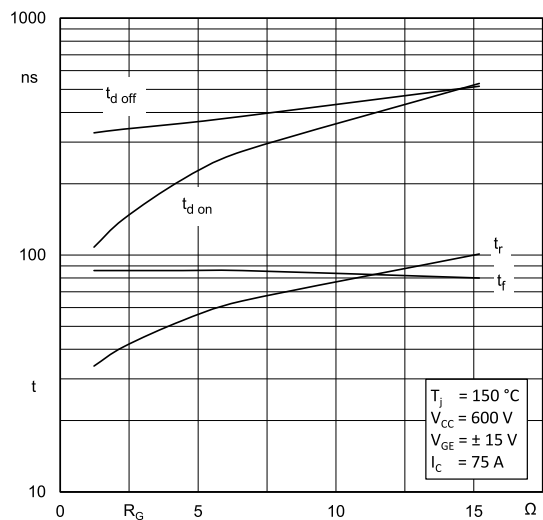
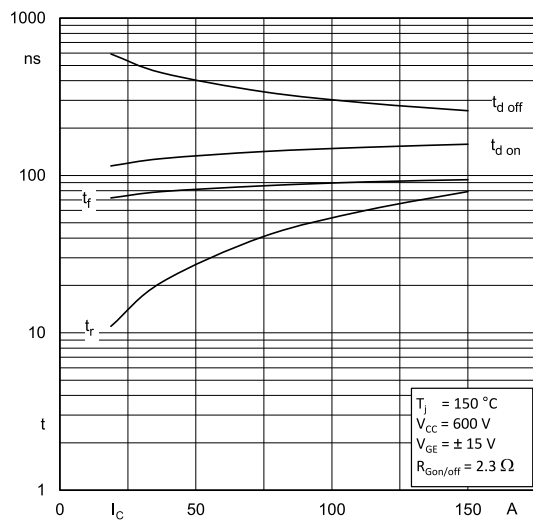
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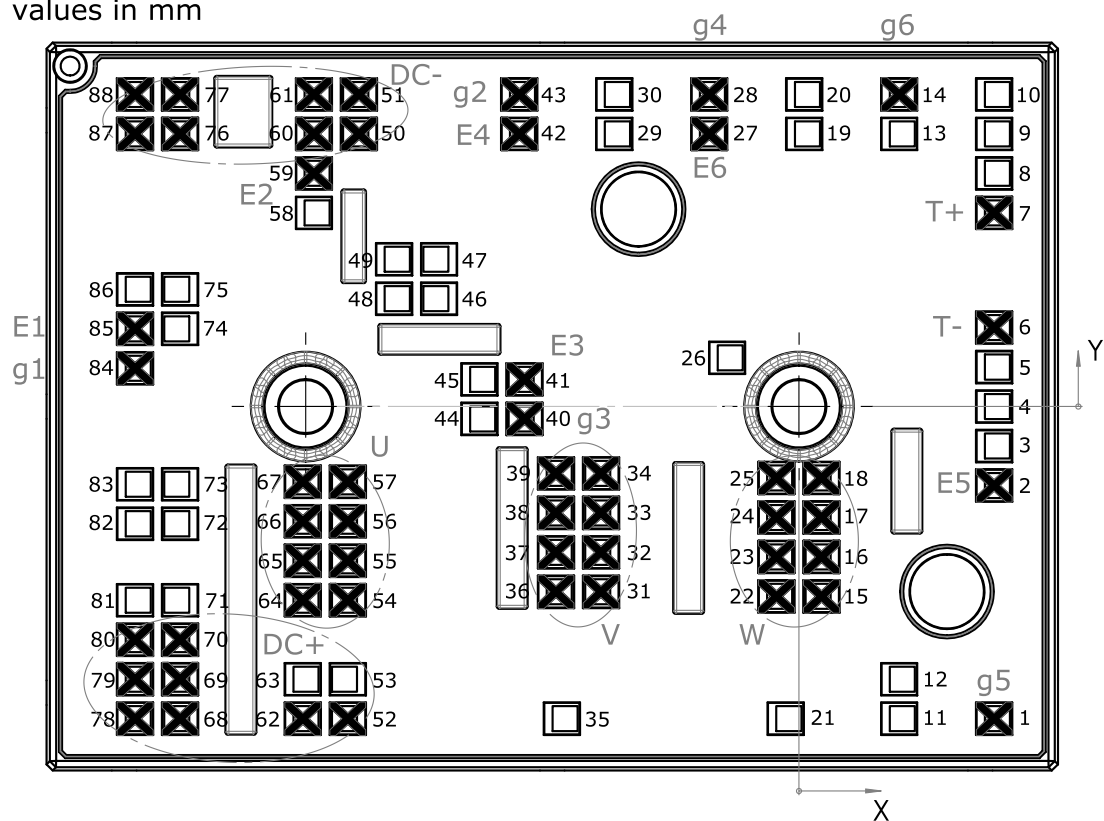
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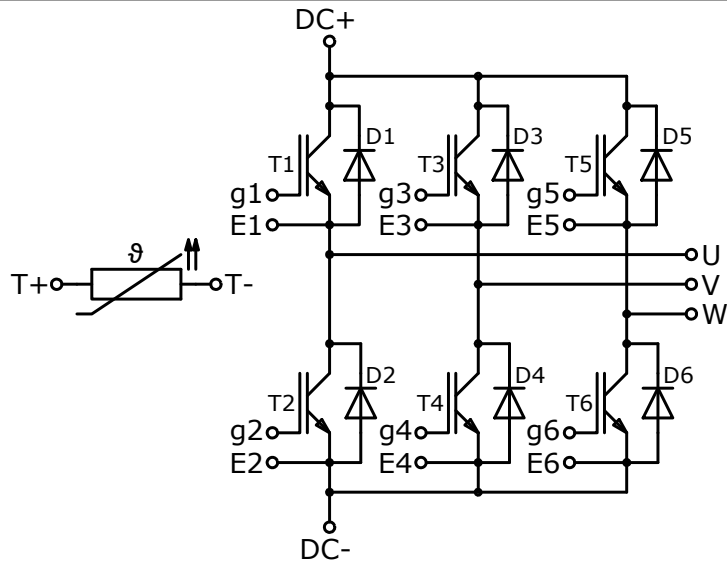


Pin out											
Pin	X	Y	Function	Pin	X	Y	Function	Pin	X	Y	Function
1	15,83	-25,30	g5	31	-16,05	-15,02	V	61	-39,33	25,30	DC-
2	15,83	-6,40	E5	32	-16,05	-11,82	V	62	-40,23	-25,30	DC+
3	15,83	-3,20		33	-16,05	-8,62	V	63	-40,23	-22,10	
4	15,83	0		34	-16,05	-5,42	V	64	-40,23	-15,70	U
5	15,83	3,20		35	-19,23	-25,30		65	-40,23	-12,50	U
6	15,83	6,40	T-	36	-19,70	-15,02	V	66	-40,23	-9,30	U
7	15,83	15,70	T+	37	-19,70	-11,82	V	67	-40,23	-6,10	U
8	15,83	18,90		38	-19,70	-8,62	V	68	-50,18	-25,30	DC+
9	15,83	22,10		39	-19,70	-5,42	V	69	-50,18	-22,10	DC+
10	15,83	25,30		40	-22,26	-1,00	g3	70	-50,18	-18,90	DC+
11	8,13	-25,30		41	-22,26	2,20	E3	71	-50,18	-15,70	
12	8,13	-22,10		42	-22,68	22,10	E4	72	-50,18	-9,50	
13	8,13	22,10		43	-22,68	25,30	g2	73	-50,18	-6,30	
14	8,13	25,30	g6	44	-25,91	-1,00		74	-50,18	6,30	
15	1,83	-15,39	W	45	-25,91	2,20		75	-50,18	9,50	
16	1,83	-12,19	W	46	-29,18	8,74		76	-50,18	22,10	DC-
17	1,83	-8,99	W	47	-29,18	11,94		77	-50,18	25,30	DC-
18	1,83	-5,79	W	48	-32,83	8,74		78	-53,83	-25,30	DC+
19	0,43	22,10		49	-32,83	11,94		79	-53,83	-22,10	DC+
20	0,43	25,30		50	-35,68	22,10	DC-	80	-53,83	-18,90	DC+
21	-1,08	-25,30		51	-35,68	25,30	DC-	81	-53,83	-15,70	
22	-1,83	-15,39	W	52	-36,58	-25,30	DC+	82	-53,83	-9,50	
23	-1,83	-12,19	W	53	-36,58	-22,10		83	-53,83	-6,30	
24	-1,83	-8,99	W	54	-36,58	-15,70	U	84	-53,83	3,10	g1
25	-1,83	-5,79	W	55	-36,58	-12,50	U	85	-53,83	6,30	E1
26	-5,83	3,95		56	-36,58	-9,30	U	86	-53,83	9,50	
27	-7,28	22,10	E6	57	-36,58	-6,10	U	87	-53,83	22,10	DC-
28	-7,28	25,30	g4	58	-39,33	15,70		88	-53,83	25,30	DC-
29	-14,98	22,10		59	-39,33	18,90	E2				
30	-14,98	25,30		60	-39,33	22,10	DC-				

all values in mm



Pinout



Pinout

IMPORTANT INFORMATION AND WARNINGS

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

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