SKiiP 202GD061-357CTV ...



6-pack - integrated intelligent Power System

Power section

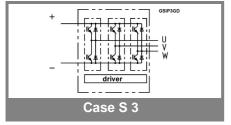
SKiiP 202GD061-357CTV

Features

- SKiiP technology inside
- Low loss IGBTs
- · CAL diode technology
- Integrated current sensor
- Integrated temperature sensor
- Integrated heat sink
- IEC 60721-3-3 (humidity) class 3K3/IE32 (SKiiP[®] 2 System)
- IEC 68T.1 (climate) 40/125/56 (SKiiP[®] 2 power section)
- with assembly of suitable MKP capacitor per terminal (SEMIKRON type is recommended)

Absolute	Maximum Ratings	s = 25 °C unless otherwise specified				
Symbol	Conditions	Values	Units			
IGBT						
V_{CES}		600	V			
V _{CES} V _{CC} 1)	Operating DC link voltage	400	V			
V_{GES}		± 20	V			
I _C	T _s = 25 (70) °C	200 (150)	Α			
Inverse diode						
$I_F = -I_C$	T _s = 25 (70) °C	200 (150)	Α			
I _{FSM}	$T_i = 150 ^{\circ}\text{C}, t_p = 10 \text{ms}; \text{sin}.$	2000	Α			
I²t (Diode)	Diode, T _j = 150 °C, 10 ms	20	kA²s			
T_j , (T_{stg})		- 40 (- 25) + 150 (125)	°C			
V _{isol}	AC, 1 min. (mainterminals to heat sink)	2500	V			

Characteristics $T_s = 2$						C unless of	otherwise	specified
	Symbol Conditions				min.	typ.	max.	Units
IGBT	Conditi	Ulia			111111.	ιyp.	IIIax.	Ullits
_	lı = 200 A	T = 25 /1	25\ °C		İ	2,5 (2,8)	2,7	l v
V _{CEsat} V _{CEO}	$I_C = 200 A$ $T_i = 25 (12)$		23) C			0,8 (0,7)		V
						8,4 (10,7)		mΩ
r _{CE}	$T_{j} = 25 (125) ^{\circ}C$					(10)	0.4	mA
I _{CES}	$V_{GE} = 0 \text{ V}, V_{CE} = V_{CES},$				(10)	0,4	IIIA	
	T _j = 25 (125) °C							
E _{on} + E _{off}	~	$V_{CC} = 300$					18	mJ
	,	C, V _{CC} = 40					26	mJ
R _{CC' + EE'}	terminal chip, T _i = 125 °C					0,5		mΩ
L _{CE}	top, bottor	n				15		nH
C _{CHC}	per phase	, AC-side				0,8		nF
Inverse o	diode							
$V_F = V_{EC}$	I _F = 200 A	, T _i = 25 (1	25) °C			1,5 (1,5)	1,8	V
V_{TO}	$T_{j} = 25 (12)$					0,8 (0,6)	1 (0,8)	V
r _T		T _i = 25 (125) °C				3,5 (4,4)	3,8 (4,6)	mΩ
E _{rr}	$I_{\rm C} = 200 \text{A}$	$V_{CC} = 300$) V				6	mJ
	T _j = 125 °0	$C, V_{CC} = 40$	00 V				8	mJ
Mechani	cal data							
M _{dc}	DC termin	als, SI Unit	s		6		8	Nm
M _{ac}	AC terminals, SI Units				13		15	Nm
w	SKiiP® 2 System w/o heat sink					2,7		kg
w	heat sink	heat sink				6,6		kg
Thermal	characte	eristics (P16 hea	t sink; 29	95 m ³ /h)	; " ृ" refer	ence to	•
temperat					•	r		
$R_{th(j-s)I}$	per IGBT						0,25	K/W
R _{th(j-s)D}	per diode						0,4	K/W
R _{th(s-a)}	per modul	е					0,036	K/W
Z _{th}	R _i (mK/W) (max. values)				tau _i (s)			
	1	2	3	4	1	2	3	4
$Z_{th(j-r)I}$	28	193	30		1	0,13	0,001	
$Z_{\text{th(j-r)D}}$	44	308	48		1	0,13	0,001	
Z _{th(r-a)}	11,1	18,3	3,5	3,1	204	60	6	0,02



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6-pack - integrated intelligent Power System

6-pack integrated gate driver

SKiiP 202GD061-357CTV

Gate driver features

- CMOS compatible inputs
- Wide range power supply
- Integrated circuitry to sense phase current, heat sink temperature and DC-bus voltage (option)
- Short circuit protection
- Over current protection
- Over voltage protection (option)
- Power supply protected against under voltage
- Interlock of top/bottom switch
- · Isolation by transformers
- Fibre optic interface (option for GB-types only)
- IEC 68T.1 (climate) 25/85/56 (SKiiP[®] 2 gate driver)

Absolute Maximum Ratings					
Symbol	Conditions	Values	Units		
V_{S1}	stabilized 15 V power supply	18	V		
V_{S1} V_{S2}	unstabilized 24 V power supply	30	V		
V_{iH}	input signal voltage (high)	15 + 0,3	V		
dv/dt	secondary to primary side	75	kV/μs		
V_{isollO}	input / output (AC, r.m.s., 2s)	2500	Vac		
V _{isol12}	output 1 / output 2 (AC, r.m.s., 2s)	1500	Vac		
f _{max}	switching frequency	20	kHz		
$T_{op} (T_{stg})$	operating / storage temperature	- 25 + 85	°C		

Characte	Characteristics (T _a				
Symbol	Conditions	min.	typ.	max.	Units
V _{S1}	supply voltage stabilized	14,4	15	15,6	V
V_{S2}	supply voltage non stabilized	20	24	30	V
I _{S1}	V _{S1} = 15 V	340+24	340+240*f/f _{max} +3,5*(I _{AC} /A)		
I _{S2}	V _{S2} = 24 V	250+170*f/f _{max} +2,6*(I _{AC} /A)			mA
V _{iT+}	input threshold voltage (High)	11,2			V
V_{iT-}	input threshold voltage (Low)			5,4	V
R _{IN}	input resistance		10		kΩ
$t_{d(on)IO}$	input-output turn-on propagation time		1,1		μs
t _{d(off)IO}	input-output turn-off propagation time		1,4		μs
t _{pERRRESET}	error memory reset time	9			μs
t _{TD}	top / bottom switch : interlock time		2,3		μs
I _{analogOUT}	8 V corresponds to max. current of 15 V supply voltage		200		А
I _{Vs1outmax}	(available when supplied with 24 V)			50	mA
I _{A0max}	output current at pin 13/20/22/24/26			5	mA
V_{0I}	logic low output voltage			0,6	V
V_{0H}	logic high output voltage			30	V
I _{TRIPSC}	over current trip level (I _{analog OUT} = 10 V)		250		Α
I _{TRIPLG}	ground fault protection		58		Α
T _{tp}	over temperature protection	110		120	°C
U _{DCTRIP}	trip level of U _{DC} -protection	400			V
	(U _{analog OUT} = 9 V); (option)				

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