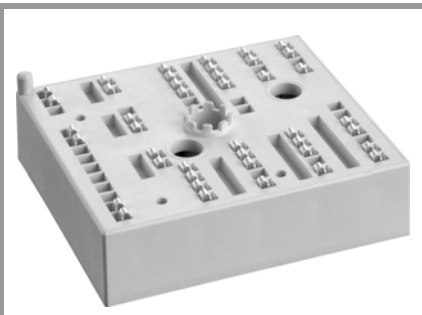




MiniSKiiP® 2

Sixpack

SKiiP 26AC12T4V1

Features*

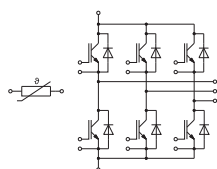
- Trench 4 IGBTs
- Robust and soft switching freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

Typical Applications

- Inverter up to 29 kVA
- Typical motor power 18,5 kW

Remarks

- V_{CEsat} , V_F = chip level value
- Case temp. limited to $T_C = 125^\circ\text{C}$ max. (for baseplateless modules $T_C = T_S$)
- product rel. results valid for $T_J \leq 150$ (recomm. $T_{op} = -40 \dots +150^\circ\text{C}$)



AC

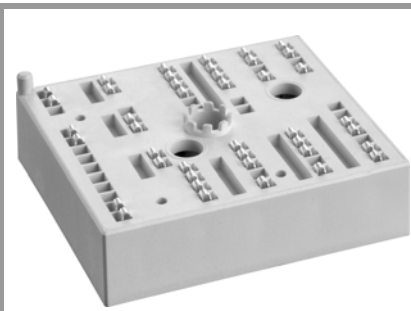
Absolute Maximum Ratings

Symbol	Conditions		Values	Unit
Inverter - IGBT				
V _{CES}	T _j = 25 °C		1200	V
I _C	λ _{paste} =0.8 W/(mK)	T _s = 25 °C	90	A
	T _j = 175 °C	T _s = 70 °C	73	A
I _C	λ _{paste} =2.5 W/(mK)	T _s = 25 °C	105	A
	T _j = 175 °C	T _s = 70 °C	86	A
I _{Cnom}			70	A
I _{CRM}			210	A
V _{GES}			-20 ... 20	V
t _{psc}	V _{CC} = 800 V V _{GE} ≤ 15 V V _{CES} ≤ 1200 V	T _j = 150 °C	10	μs
T _j			-40 ... 175	°C
Inverse - Diode				
V _{RRM}	T _j = 25 °C		1200	V
I _F	λ _{paste} =0.8 W/(mK)	T _s = 25 °C	83	A
	T _j = 175 °C	T _s = 70 °C	66	A
I _F	λ _{paste} =2.5 W/(mK)	T _s = 25 °C	96	A
	T _j = 175 °C	T _s = 70 °C	77	A
I _{FRM}			225	A
I _{FSM}	t _p = 10 ms, sin 180°, T _j = 150 °C		430	A
T _j			-40 ... 175	°C
Module				
I _{t(RMS)}	T _{terminal} = 80 °C, 20 A per spring		100	A
T _{stg}	module without TIM		-40 ... 125	°C
V _{isol}	AC sinus 50 Hz, t = 1 min		2500	V

Characteristics

Symbol	Conditions	min.	typ.	max.	Unit
Inverter - IGBT					
$V_{CE(sat)}$	$I_C = 70 \text{ A}$ $V_{GE} = 15 \text{ V}$ chipelevel	$T_J = 25^\circ\text{C}$	1.85	2.10	V
		$T_J = 150^\circ\text{C}$	2.25	2.45	V
V_{CE0}	chipelevel	$T_J = 25^\circ\text{C}$	0.80	0.90	V
		$T_J = 150^\circ\text{C}$	0.70	0.80	V
r_{CE}	$V_{GE} = 15 \text{ V}$ chipelevel	$T_J = 25^\circ\text{C}$	15	17	m Ω
		$T_J = 150^\circ\text{C}$	22	24	m Ω
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 2 \text{ mA}$	5	5.8	6.5	V
I_{CES}	$V_{GE} = 0 \text{ V}, V_{CE} = 1200 \text{ V}, T_J = 25^\circ\text{C}$			1	mA
C_{ies}	$V_{CE} = 25 \text{ V}$	$f = 1 \text{ MHz}$	3.90		nF
C_{oes}	$V_{GE} = 0 \text{ V}$	$f = 1 \text{ MHz}$	0.31		nF
C_{res}		$f = 1 \text{ MHz}$	0.23		nF
Q_G	$V_{GE} = -8 \text{ V} \dots +15 \text{ V}$		400		nC
R_{Gint}	$T_J = 25^\circ\text{C}$		0		Ω
$t_{d(on)}$	$V_{CC} = 600 \text{ V}$	$T_J = 150^\circ\text{C}$	26		ns
t_r	$I_C = 75 \text{ A}$	$T_J = 150^\circ\text{C}$	36		ns
E_{on}	$R_{G on} = 9.1 \Omega$	$T_J = 150^\circ\text{C}$	9.5		mJ
$t_{d(off)}$	$R_{G off} = 9.1 \Omega$	$T_J = 150^\circ\text{C}$	320		ns
t_f	$di/dt_{on} = 1820 \text{ A}/\mu\text{s}$ $di/dt_{off} = 900 \text{ A}/\mu\text{s}$	$T_J = 150^\circ\text{C}$	175		ns
E_{off}	$V_{GE} = +15/-15 \text{ V}$	$T_J = 150^\circ\text{C}$	7.1		mJ
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=0.8 \text{ W/(mK)}$		0.55		K/W
$R_{th(j-s)}$	per IGBT, $\lambda_{paste}=2.5 \text{ W/(mK)}$		0.42		K/W

SKiiP 26AC12T4V1



MiniSKiiP® 2

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SKiiP 26AC12T4V1

Features*

- Trench 4 IGBTs
- Robust and soft switching freewheeling diodes in CAL technology
- Highly reliable spring contacts for electrical connections
- UL recognized: File no. E63532

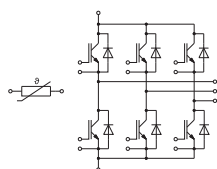
Typical Applications

- Inverter up to 29 kVA
- Typical motor power 18,5 kW

Remarks

- V_{CEsat} , V_F = chip level value
- Case temp. limited to $T_C = 125^\circ\text{C}$ max. (for baseplateless modules $T_C = T_S$)
- product rel. results valid for $T_j \leq 150$ (recomm. $T_{op} = -40 \dots +150^\circ\text{C}$)

Characteristics						
Symbol	Conditions		min.	typ.	max.	Unit
Inverse - Diode						
V _F = V _{EC}	I _F = 75 A V _{GE} = 0 V chiplevel	T _j = 25 °C		2.17	2.49	V
		T _j = 150 °C		2.11	2.42	V
V _{F0}	chiplevel	T _j = 25 °C		1.30	1.50	V
		T _j = 150 °C		0.90	1.10	V
r _F	chiplevel	T _j = 25 °C		12	13	mΩ
		T _j = 150 °C		16	18	mΩ
I _{RRM}	I _F = 75 A	T _j = 150 °C		80		A
Q _{rr}	di/dt _{off} = 2120 A/μs	T _j = 150 °C		13.3		μC
E _{rr}	V _{GE} = +15/-15 V V _{CC} = 600 V	T _j = 150 °C		5.6		mJ
R _{th(j-s)}	per Diode, λ _{paste} =0.8 W/(mK)			0.75		K/W
R _{th(j-s)}	per Diode, λ _{paste} =2.5 W/(mK)			0.6		K/W
Module						
L _{CE}				-		nH
M _s	to heat sink		2		2.5	Nm
w				55		g
Temperature Sensor						
R ₁₀₀	T _r =100°C (R ₂₅ =1000Ω)			1670 ± 3%		Ω
R _(T)	R _(T) =1000Ω[1+A(T-25°C)+B(T-25°C) ²] , A = 7.635*10 ⁻³ °C ⁻¹ , B = 1.731*10 ⁻⁵ °C ⁻²					



AC

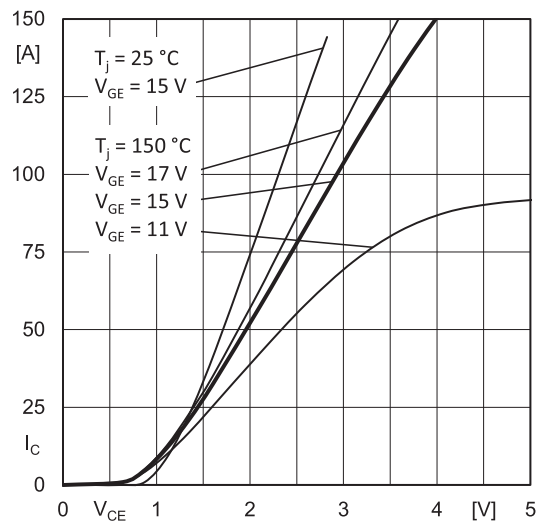


Fig. 1: Typ. output characteristic

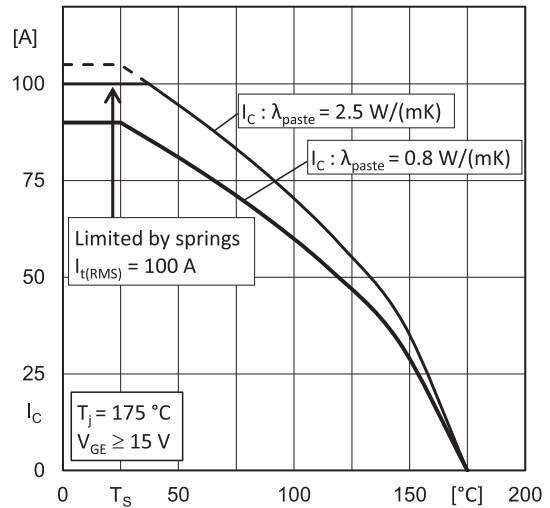


Fig. 2: Rated current vs. temperature $I_C = f(T_S)$

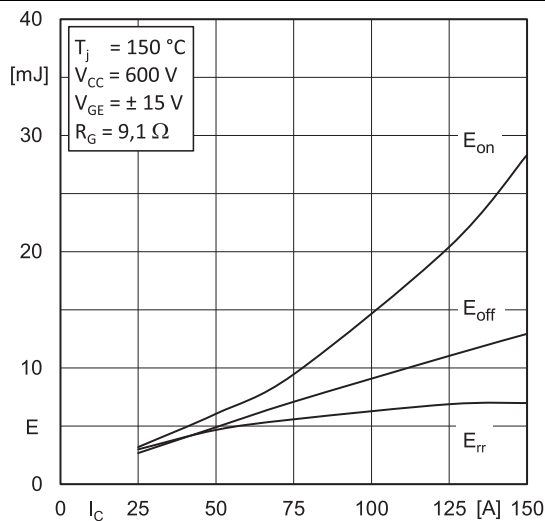


Fig. 3: Typ. turn-on /-off energy = $f(I_C)$

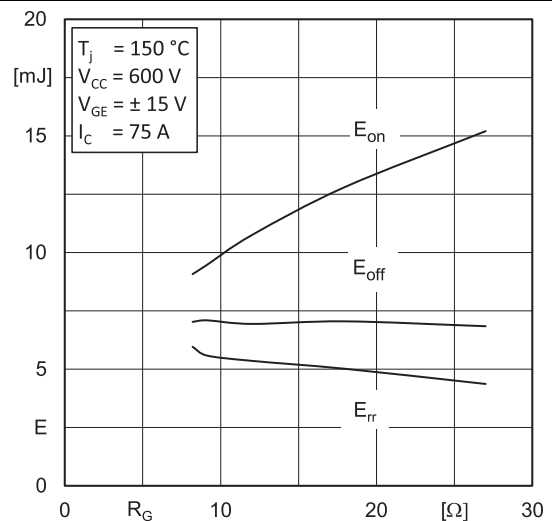


Fig. 4: Typ. turn-on /-off energy = $f(R_G)$

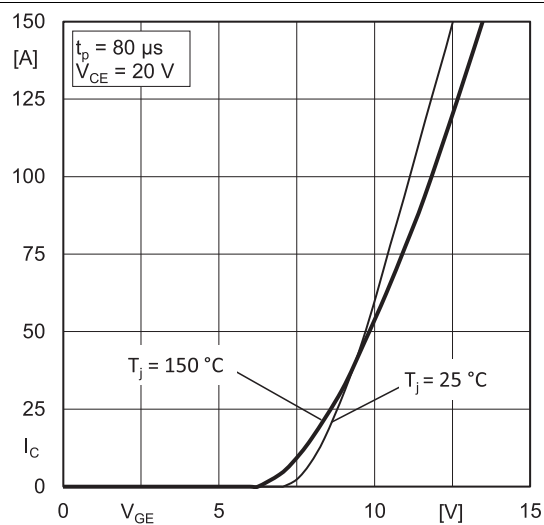


Fig. 5: Typ. transfer characteristic

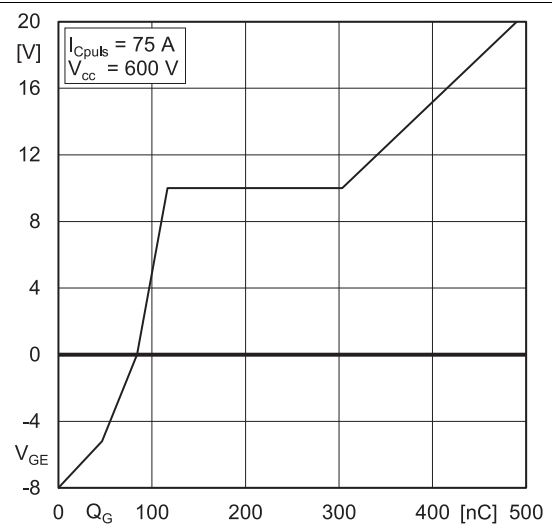


Fig. 6: Typ. gate charge characteristic

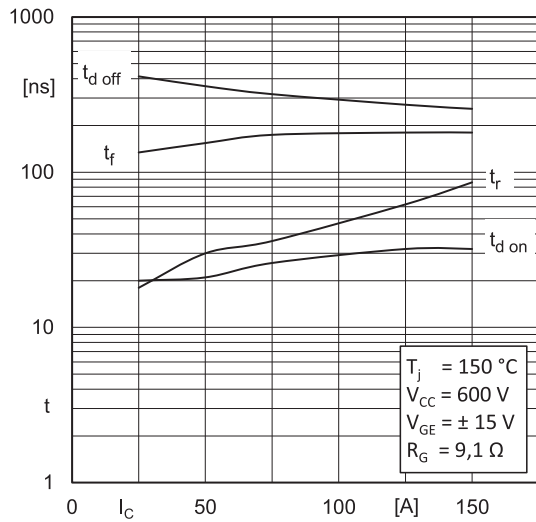


Fig. 7: Typ. switching times vs. I_C

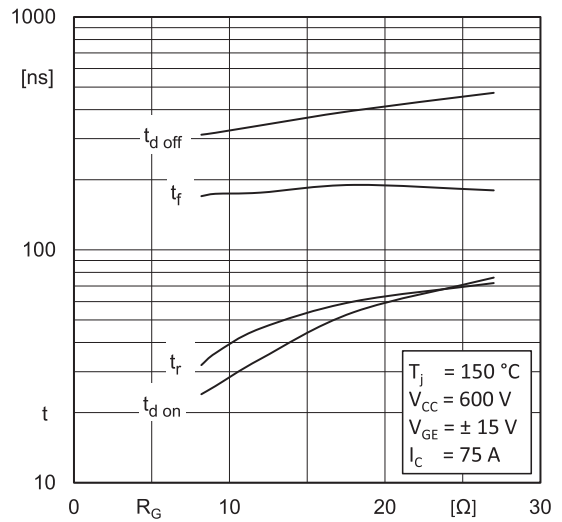


Fig. 8: Typ. switching times vs. gate resistor R_G

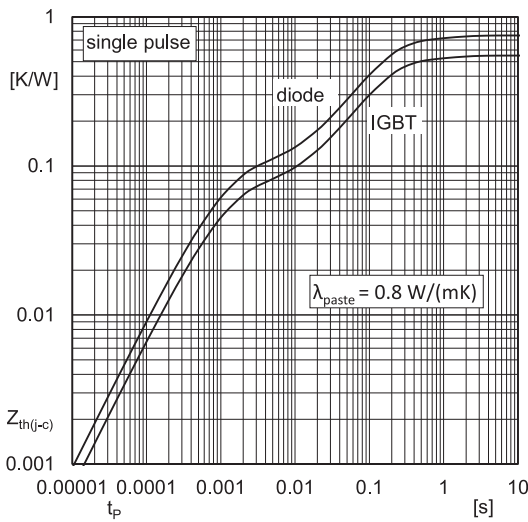


Fig. 9: Typ. transient thermal impedance

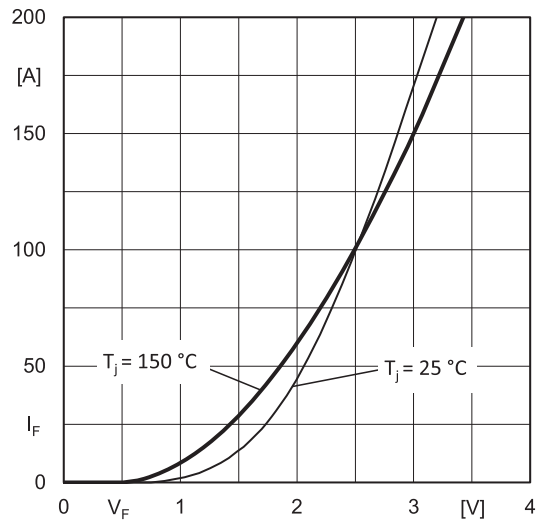


Fig. 10: Typ. CAL diode forward characteristic

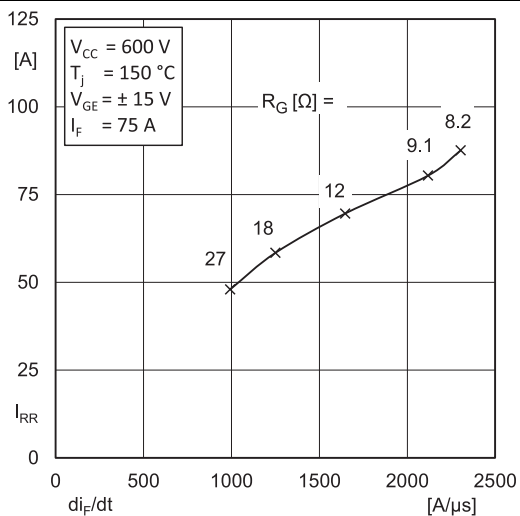


Fig. 11: Typ. CAL diode peak reverse recovery current

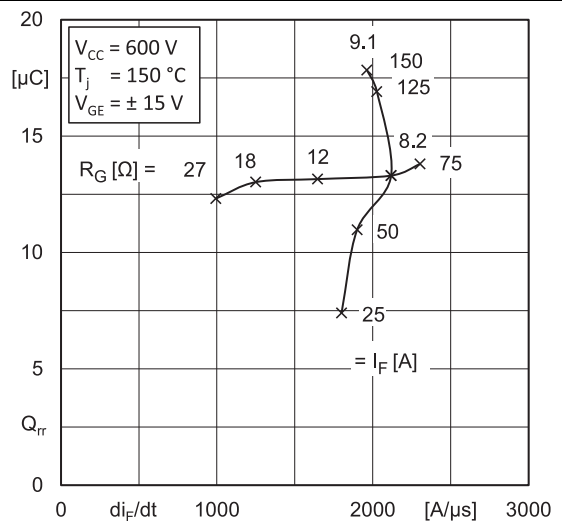
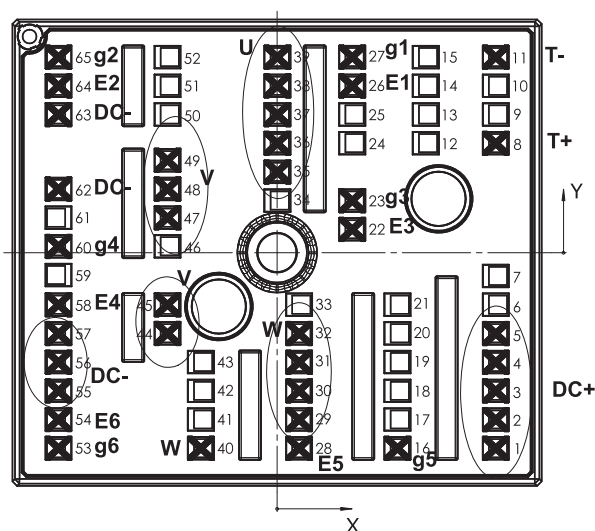


Fig. 12: Typ. CAL diode recovery charge

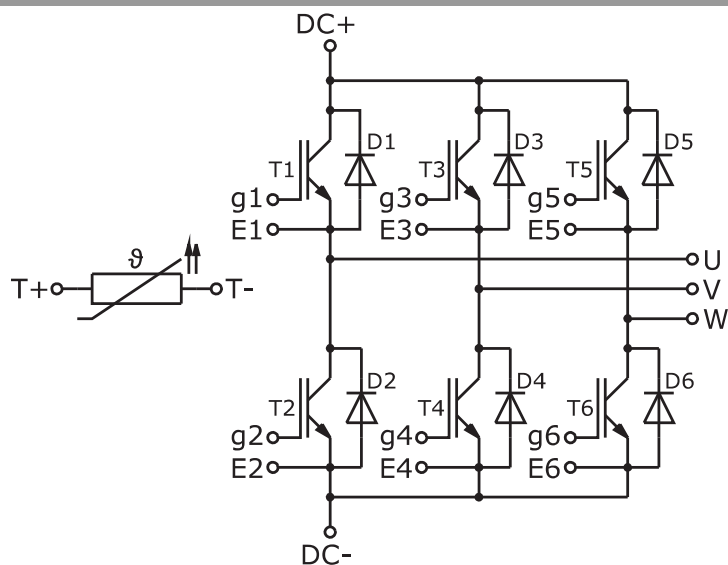
SKiiP 26AC12T4V1

Pin out											
Pin	X	Y	Function	Pin	X	Y	Function	Pin	X	Y	Function
1	24,38	-21,80	DC+	23	8,38	5,80	g3	45	-12,23	-5,80	V
2	24,38	-18,60	DC+	24	8,38	12,20		46	-12,23	0,70	
3	24,38	-15,40	DC+	25	8,38	15,40		47	-12,23	3,90	V
4	24,38	-12,20	DC+	26	8,38	18,60	E1	48	-12,23	7,10	V
5	24,38	-9,00	DC+	27	8,38	21,80	g1	49	-12,23	10,30	V
6	24,38	-5,80		28	2,46	-21,80	E5	50	-12,23	15,40	
7	24,38	-2,60		29	2,46	-18,60	W	51	-12,23	18,60	
8	24,38	12,20	T+	30	2,46	-15,40	W	52	-12,23	21,80	
9	24,38	15,40		31	2,46	-12,20	W	53	-24,38	-21,80	g6
10	24,38	18,60		32	2,46	-9,00	W	54	-24,38	-18,60	E6
11	24,38	21,80	T-	33	2,46	-5,80		55	-24,38	-15,40	DC-
12	16,58	12,20		34	0,03	5,80		56	-24,38	-12,20	DC-
13	16,58	15,40		35	0,03	9,00	U	57	-24,38	-9,00	DC-
14	16,58	18,60		36	0,03	12,20	U	58	-24,38	-5,80	E4
15	16,58	21,80		37	0,03	15,40	U	59	-24,38	-2,50	
16	13,42	-21,80	g5	38	0,03	18,60	U	60	-24,38	0,70	g4
17	13,42	-18,60		39	0,03	21,80	U	61	-24,38	3,90	
18	13,42	-15,40		40	-8,51	-21,80	W	62	-24,38	7,10	DC-
19	13,42	-12,20		41	-8,51	-18,60		63	-24,38	15,40	DC-
20	13,42	-9,00		42	-8,51	-15,40		64	-24,38	18,60	E2
21	13,42	-5,80		43	-8,51	-12,20		65	-24,38	21,80	g2
22	8,38	2,60	E3	44	-12,23	-9,00	V				

all values in mm



Pinout and Dimensions



Pinout

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

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