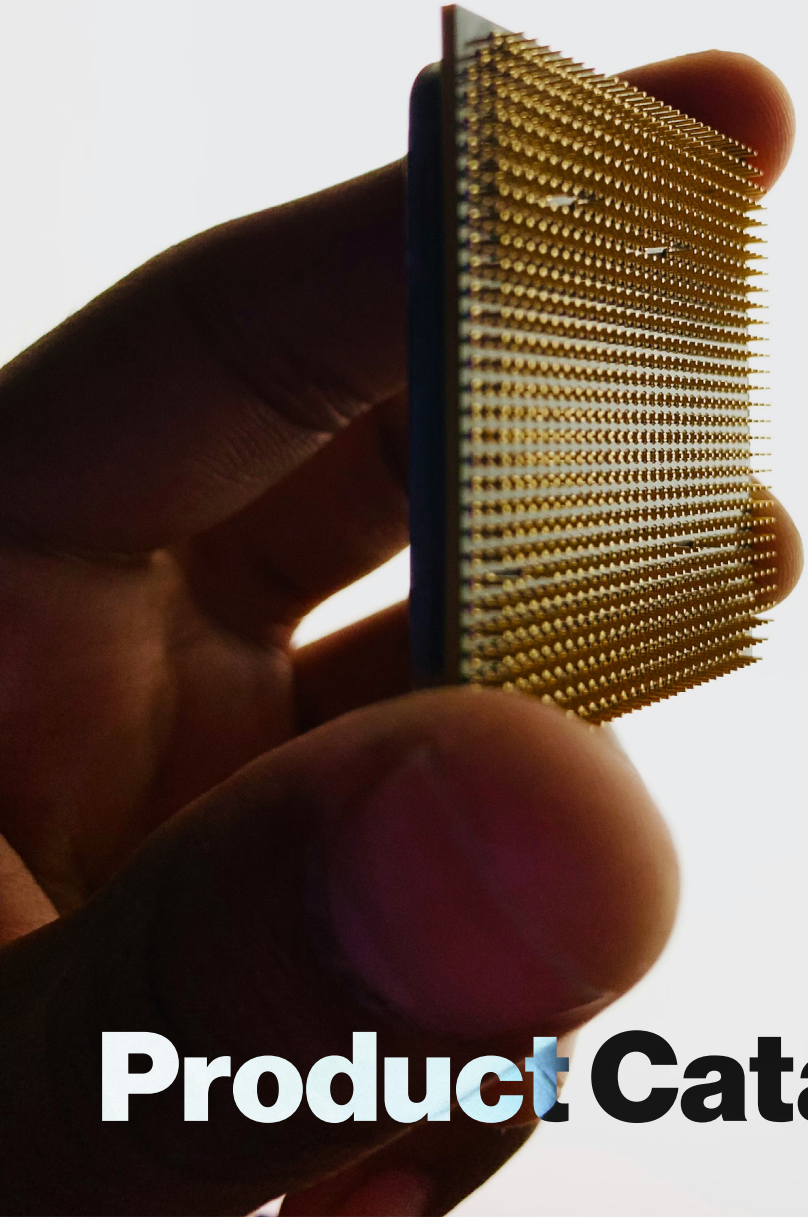
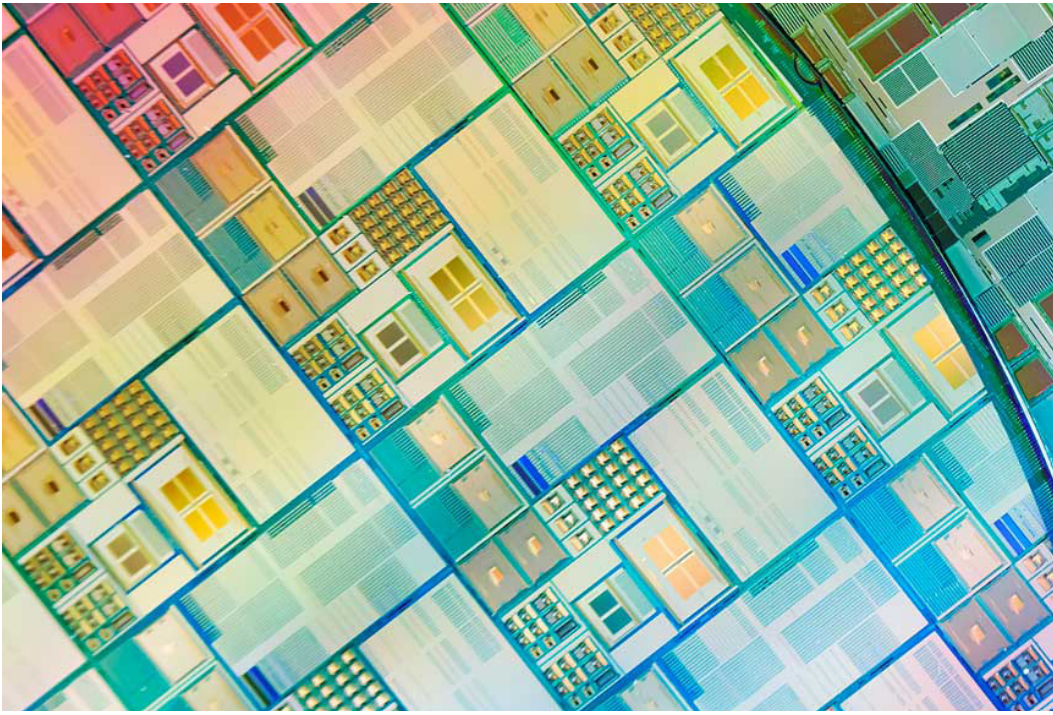
iVP SEMI

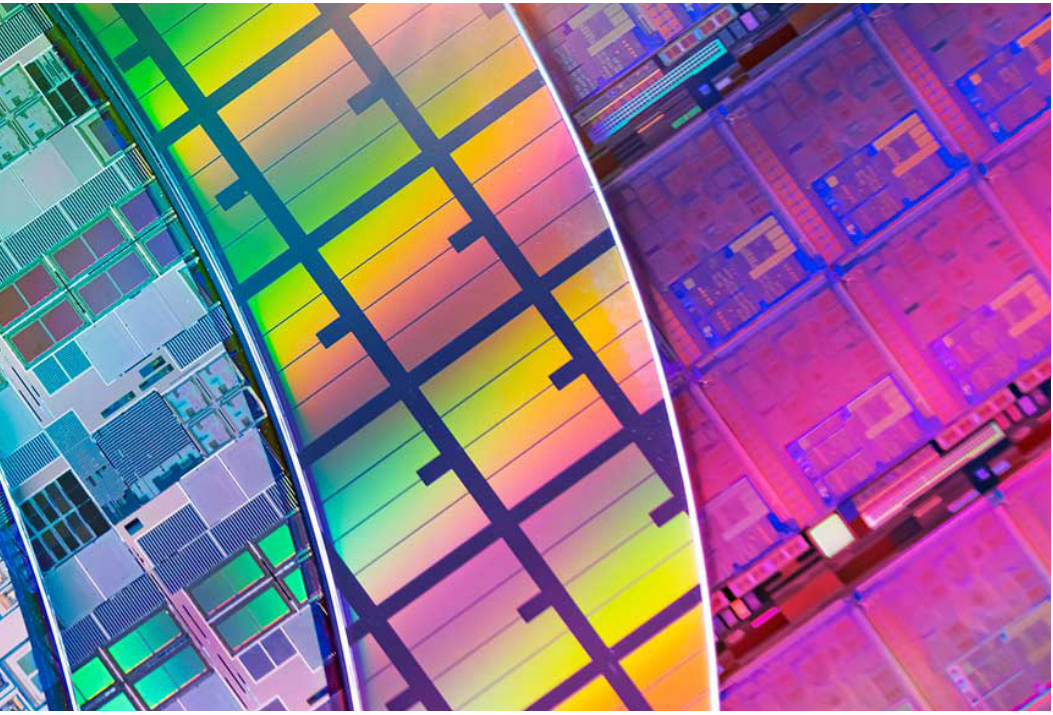


Product Catalog



At iVP Semiconductor, we're building India's semiconductor future – from the ground up, for India, with the world. Founded in 2024 by **Raja Manickam**, a seasoned leader in the semiconductor industry, iVP is driven by a clear mission: to solve India's challenges with India's solutions, while collaborating with global partners to grow together. We believe that India's unique needs, whether in EVs, renewable energy, or industrial automation, demand solutions designed for India, by India. With our deep local expertise and cutting-edge power semiconductor technologies – from EV traction inverters to solar and industrial power modules – we help our customers unlock new opportunities and drive innovation where it matters most.

But our impact goes beyond technology. At iVP, we live by a simple truth: *"There is an Indian in every chip."*



Our team, our partners, and our solutions reflect India's ingenuity and determination to lead in semiconductor innovation. However, building India's semiconductor ecosystem is not a solo journey. It's about collaboration – working alongside local manufacturers, developers, suppliers, and global partners to create a win-win ecosystem. Our role is to bring homegrown innovation and solutions, while our partners bring their global experience and resources to help us scale and thrive.

As our CEO puts it: *"The best partnerships create value for everyone. We solve local challenges with local expertise, and together with our partners, we help grow India's semiconductor industry – driving progress for all."* At iVP, we're not just building semiconductors. We're building partnerships, progress, and a stronger India – powered by innovation, together.

About the Founder

With decades of experience at Texas Instruments, Fairchild, STATS ChipPac and UTAC, **Raja Manickam** built Tessolve into a ₹1,000+ crore semiconductor solutions leader, led TATA Electronics OSAT, and is now driving India's chip revolution with iVP Semiconductor.

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iVP Semi – As Featured In

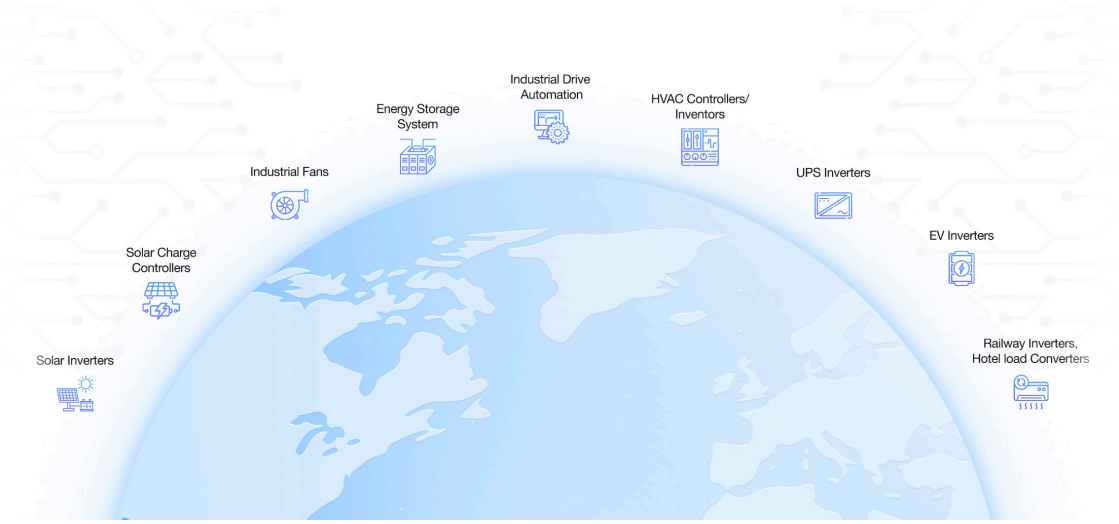
Inc42 Business Standard DCD THE TIMES OF INDIA businessline.

Product Overview

iVP Semiconductor is a fabless semiconductor startup focusing on building Power Solutions for the Indian market. Serving the renewables, EV, industrial, and automotive sectors, iVP Semi's vision is to localize semiconductor production, enhance technological autonomy and foster a robust local ecosystem that addresses global supply challenges through Indian developed solutions.

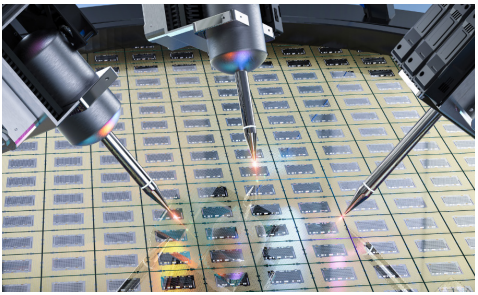
Industrial Applications

Offering a wide range of designed and Made in India products, which are addressed towards the local industries and markets.



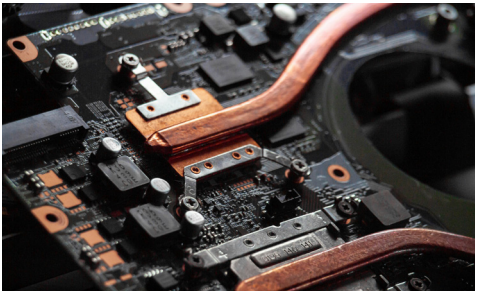
Product Development

Experience the unique iVP advantage today



Advanced Technology

The use of our advanced TrechMOS technology with low on-resistance and good switching speed can effectively reduce switiching losses, and improve the overall efficiency of the system.



Thermal Performance

iVP encourages the effective use of a heatsink in the system design for the most optimum device utilisation of MOSFETs. Heatsinks have a profound effect on the MOSFET current rating and overall device performance.

High Reliability

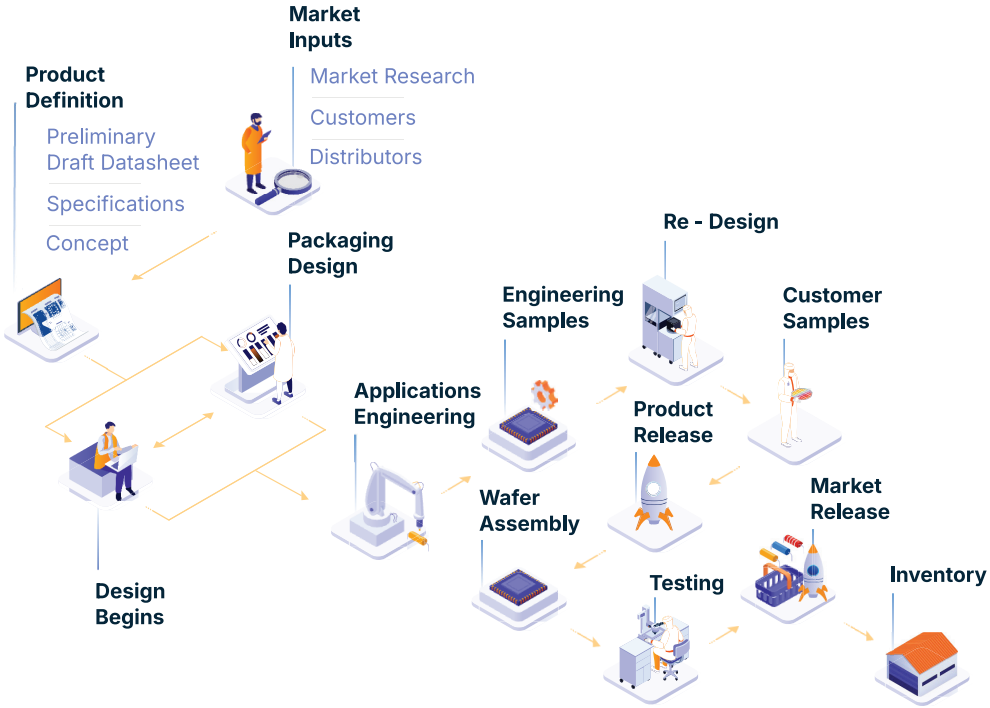
Our products are stress tested in the field and market. Pre and post production testing and verification ensures that the products are able to operate reliably under various working and environmental conditions in the systems.

Sustainability

Production of iVP Power discrete (MOSFETs and DC-DC) meet environmental and industry requirements using leaf-free, halogen-free and other environmentally friendly materials to reduce the impact on the environment.

Collaboration Framework

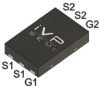
Continuous Customer Feedback & Field Support

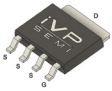


- Local Inventory: Your Supply is Always within Arms Reach
- Short Lead and Quick Delivery Turnaround Times
- Flexible Technical Support for your Local Needs
- Support to Optimize your BOM and Ownership Costs

Package Outline

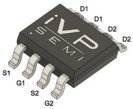
Widely used in consumer electronic devices, BLDC controllers, motor drivers, solar inverters, drones, etc.

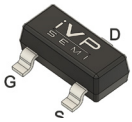

DFN2x3-6L

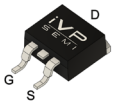

LFPAK56


PDFN3x3


PDFN5x6


SOP-8L


SOT-23


TO_263


TO-220_V1


TO-220_V2


TO-220F_v1


TO-220F_V2


TO-247-3L_V1


TO-247-3L_V2


TO-252-2L


TOLL

Voltage Band	Main Application Market
30 – 40V	12V BMS, Inverters
60V	Drone Motor Controllers, Solar Inverters, Integrated Power Supplies, BLDC Fans, Smart Home Appliances and Smart Helmets
80V	Solar Street Lights, Motor Controllers
100V	Motor Controllers, 750W Power Tools, BLDC Fan Control Cards, 960W Charger in Drones, Solar Inverters
150V	72V BMS, EV Chargers

Power MOSFETs

Power MOSFETs are voltage - controlled devices. When a voltage is applied to the gate terminal, an electric field is created that allows current to flow between the source and drain terminals. They have variety of uses such as power supplies, motor controllers, and DC-to-DC converters for residential, commercial, architectural lighting,as well as automotive applications.
The benefits of using Power MOSFETs include low gate drive power, fast switching speed, and ease of application. iVP offers a wide variety of MOSFETS with various voltage ranges (VDSS), low switching losses and wide variety of packaging options. iVP outlines its naming rules and summary of readily available products.

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iVP Semi MOSFET Naming Rules

VPLM	XX	YYY	N	ZZZ	TR
iVP Semi Series	Package Identifier BB: TO-220 PP: TO-247 DD: TO-263/D2pak DP: TO-252/Dpak DF: DFN/LPAK TL: TOLL SP: SOP8 ST: SOR23	Current Rating (A)	Polarity N: N Channel P: P Channel D: Dual Channel	Voltage Identifier 040:40V 060:60V 080:80V 100:100V 150:150V	Packing TR: Tape & Reel TU: Tube BG: Bag

For Example:

VPLM	DF	049	N	100	TR
iVP Semi	DF:DFN/LPAK	49A	N Channel	100V	Tape & Reel

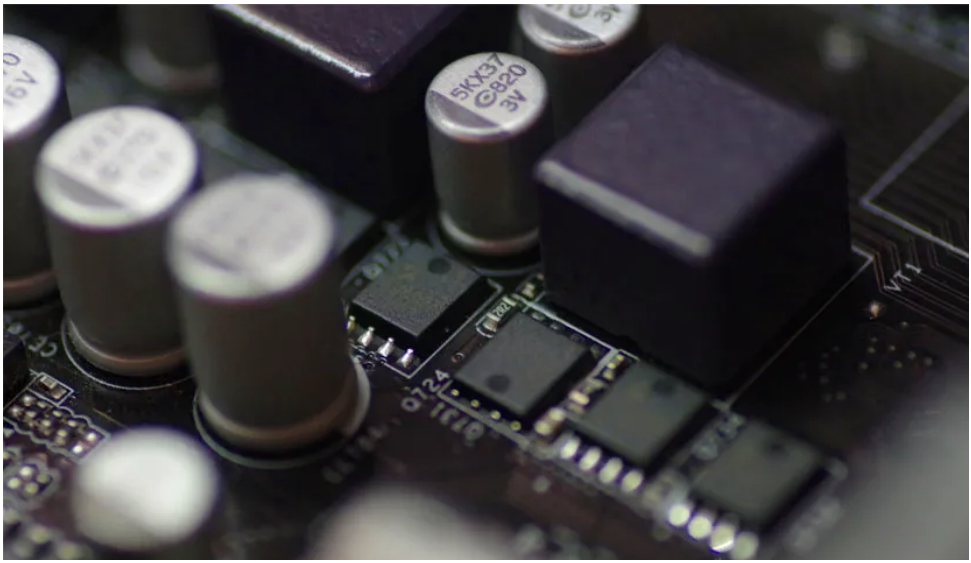
Sr.	iVP Part No.	Type	VDSS(V)	ID(A)	RDS(on) Typ [mΩ]	Package
1	VPLMDF008D020TR	Dual N-ch	20	7.8	6	DFN2*3-6L
2	VPLMBB218N030TU	N-ch	30	218	2.1	TO-220
3	VPLMBB133N030TU	N-ch	30	133	2.6	TO-220
4	VPLMDF310N030TR	N-ch	30	310	0.85	PDFN5*6
5	VPLMSP008D030TR	Dual N-ch	30	8	10	SOP-8L(Dual)
6	VPLMST005N030TR	N-ch	30	4.7	26	SOT-23
7	VPLMSP006D030TR	Dual N-ch	30	6	16	SOP-8
8	VPLMSP015N030TR	N-ch	30	14.7	4.1	SOP-8L
9	VPLMDF108N030TR	N-ch	30	108	2.6	PDFN5*6
10	VPLMDD218N030TR	N-ch	30	218	2	TO-263-2L
11	VPMMST006N030TR	N-ch	30	5.4	3.3	SOT-23
12	VPMMSP006C030TR	N-ch	30	6.9and -6	21.5	SOIC-8L
13	VPMMSP007C030TR	N-ch	30	7.2 and -6.1	15	SOIC-8L
14	VPLMDF046N040TR-Q	N-ch	40	46	6.7	PDFN3.3*3.3
15	VPLMDF245N040TR	N-ch	40	245	1.1	PDFN5*6
16	VPMMDP050N040TR	N-ch	40	50	6.1	TO-252
17	VPLMDF290N040TR	N-ch	40	290	0.8	PDFN5*6
18	VPLMDF269N045TR	N-ch	45	269	0.7	LFPAK56
19	VPLMDF053N060TR	N-ch	60	53	8.5	PDFN3.3*3.3
20	VPLMDF142N060TR	N-ch	60	142	2.2	PDFN5*6
21	VPLMDF141N060TR	N-ch	60	142	2.7	PDFN5*6
22	VPLMDF072N060TR	N-ch	60	72	5.4	PDFN5*6
23	VPLMDF065N060TR	N-ch	60	65	8.5	PDFN5*6
24	VPLMBB153N060TU	N-ch	60	153	3.2	TO-220
25	VPLMSP004N060TR	N-ch	60	4.5	33	SOP-8L

Sr.	iVP Part No.	Type	VDSS(V)	ID(A)	RDS(on) Typ [mΩ]	Package
26	VPLMST001N060TR	N-ch	60	0.31	0.0016	SOT-23
27	VPLMDF223N060TR	N-ch	60	223	1.3	LFPAK56
28	VPLMDF226N060TR	N-ch	60	226	1.2	LFPAK56
29	VPLMBB204N060TU	N-ch	60	204	2.5	TO-220
30	VPLMDF001N060TR	N-ch	60	0.4	1.5	FBP1006
31	VPLMSP008N060TR	N-ch	60	8	16	SOP-8
32	VPLMSP005D060TR	Dual N-ch	60	4.8	33	SOP-8L
33	VPLMDF068N080TR	N-ch	80	68	6.4	PDFN3.3*3.3
34	VPLMDF083N080TR	N-ch	80	83	6.1	PDFN5*6
35	VPLMBB132N080TU	N-ch	80	132	3.5	TO-220
36	VPLMBB141N080TU	N-ch	80	141	3.1	TO-220
37	VPLMTL426N080TR	N-ch	80	426	1	TOLL
38	VPMMTL300N080TR	N-ch	80	300	1.3	TOLL
39	VPLMDF049N100TR	N-ch	100	49	7.6	PDFN3.3*3.3
40	VPLMDF043N100TR	N-ch	100	43	8.5	PDFN3.3*3.3
41	VPLMDF031N100TR	N-ch	100	31	13	PDFN3.3*3.3
42	VPLMPP411N100TU	N-ch	100	411	1.4	TO-247
43	VPPMDD297N100TR	N-ch	100	297	1.3	TO-263-7
44	VPPMDD212N100TR	N-ch	100	212	2.2	TO-263-7
45	VPLMBB047N100TU	N-ch	100	47	8.5	TO-220-F
46	VPLMBB046N100TU	N-ch	100	46	8.9	TO-220-F
47	VPLMDD245N100TR	N-ch	100	245	2.7	TO-263
48	VPLMDD205N100TR	N-ch	100	205	3.8	TO-263
49	VPLMDD122N100TR	N-ch	100	122	3.9	TO-263
50	VPLMDD123N100TR	N-ch	100	122	5.5	TO-263

Sr.	iVP Part No.	Type	VDSS(V)	ID(A)	RDS(on) Typ [mΩ]	Package
51	VPLMBB124N100TU	N-ch	100	122	4	TO-220
52	VPLMBB125N100TU	N-ch	100	122	4	TO-220
53	VPLMBB126N100TU	N-ch	100	122	5	TO-220
54	VPLMBB127N100TU	N-ch	100	122	5.5	TO-220
55	VPLMBB091N100TU	N-ch	100	91	7	TO-220
56	VPLMBB090N100TU	N-ch	100	90	8.5	TO-220
57	VPLMBB064N100TU	N-ch	100	64	8.9	TO-220
58	VPLMDF140N100TR	N-ch	100	140	3.5	PDFN5*6
59	VPLMDF142N100TR	N-ch	100	142	3.6	PDFN5*6
60	VPLMDF103N100TR	N-ch	100	103	4.5	PDFN5*6
61	VPLMDF098N100TR	N-ch	100	98	5	PDFN5*6
62	VPLMDF091N100TR	N-ch	100	91	6.5	PDFN5*6
63	VPLMDF087N100TR	N-ch	100	87	7.2	PDFN5*6
64	VPLMDF058N100TR	N-ch	100	58	7.6	PDFN5*6
65	VPLMDF058N100TR-Q	N-ch	100	58	7.6	PDFN5*6
66	VPLMDF053N100TR	N-ch	100	53	8	PDFN5*6
67	VPLMBB102N100TU	N-ch	100	102	5.3	TO-220
68	VPLMDP078N100TR	N-ch	100	78	8.1	TO-252
69	VPLMDF041N100TR	N-ch	100	41	12.5	PDFN5*6
70	VPLMDD362N100TR	N-ch	100	362	1.4	TO-263
71	VPLMBB243N100TU	N-ch	100	243	1.8	TO-220
72	VPPMTL316N100TR	N-ch	100	316	1	TOLL
73	VPPMTL331N100TR-Q	N-ch	100	331	1.2	TOLL
74	VPLMTL395N100TR	N-ch	100	395	1.05	TOLL
75	VPMMDP060N100TR	N-ch	100	60	6.8	TO-252

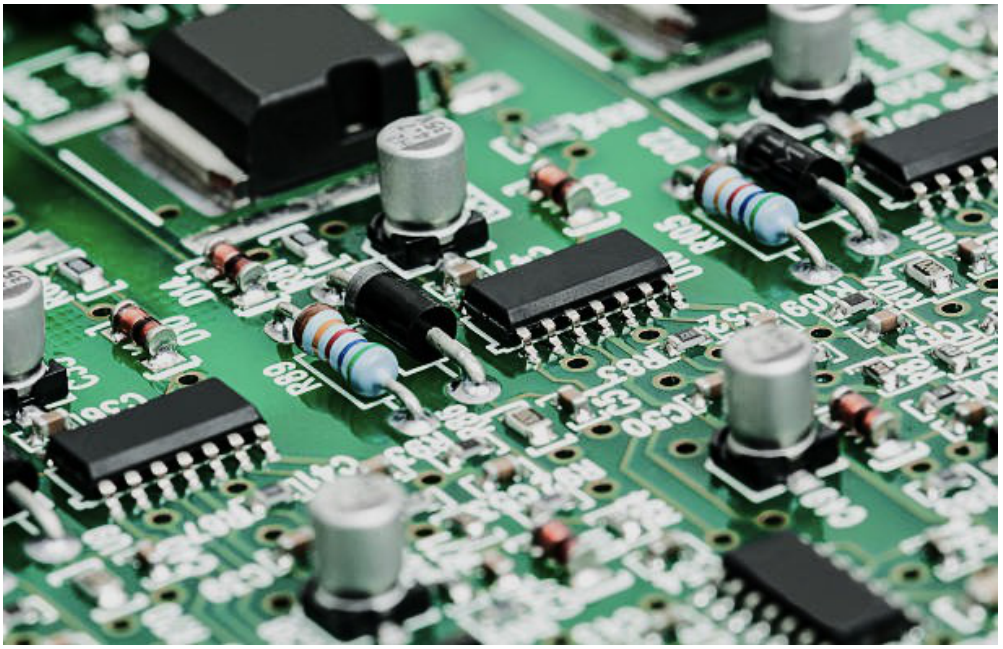
Sr.	iVP Part No.	Type	VDSS(V)	ID(A)	RDS(on) Typ [mΩ]	Package
76	VPLMST002N100TR	N-ch	100	1.3	260	SOT-23
77	VPMMMP240N100TR	N-ch	100	240	2.2	M2PAK-7P
78	VPLMDD149N150TR	N-ch	150	149	8.5	TO-263
79	VPMMTL191N150TR	N-ch	150	191	4.63	TOLL
80	VPLMDF065N150TR	N-ch	150	65	16	PDFN5*6
81	VPLMBB111N150TU	N-ch	150	111	8.5	TO-220-3L
82	VPLMDF108N150TR	N-ch	150	108	8.2	PDFN5*6
83	VPMMDD095N200TR	N-ch	200	95	10.6	TO-263
84	VPMMTL100N200TR	N-ch	200	100	9.8	TOLL
85	VPMMPP095N200TU	N-ch	200	95	10.4	TO-247
86	VPMMMP100N200TR	N-ch	200	100	10.1	M2PAK-7P
87	VPMMBB095N200TU	N-ch	200	95	10.4	TO-220
88	VPMMPP060N600TU	N-ch	600	60	38	TO-247
89	VPMMBB013N600TU	N-ch	600	13	260	TO-220
90	VPMMBB011N600TU	N-ch	600	11	320	TO-220
91	VPMMPP053N600TU	N-ch	600	53	63	TO-247
92	VPMMPP050N600TU	N-ch	600	50	66	TO-247
93	VPMMBB012N600TU	N-ch	600	12	231	TO-220
94	VPMMTL044N600TR	N-ch	600	44	45	TOLL
95	VPMMPP101N650TU	N-ch	650	101	20	TO-247
96	VPMMPP102N650TU	N-ch	650	101	23	TO-247
97	VPMMFB020N650TU	N-ch	650	20	170	TO-220-F
98	VPMMFB035N650TU	N-ch	650	35	79	TO-220-F
99	VPFMPP072N650TU	N-ch	650	72	31	TO-247
100	VPMMFB018N650TU	N-ch	650	18	170	TO-220-F

Sr.	iVP Part No.	Type	VDSS(V)	ID(A)	RDS(on) Typ [mΩ]	Package
101	VPMMBB020N650TU	N-ch	650	20	170	TO-220
102	VPMMDP012N650TR	N-ch	650	12	280	TO-252
103	VPMMFB005N800TU	N-ch	800	4.5	950	TO-220-F
104	VPMMFB006N800TU	N-ch	800	6	780	TO-220-F
105	VPMMFB008N800TU	N-ch	800	8	560	TO-220-F
106	VPMMFB009N800TU	N-ch	800	8	560	TO-220-F
107	VPMMDP005N800TR	N-ch	800	4.5	950	TO-252
108	VPMMFB004N800TU	N-ch	800	4.5	950	TO-220-F
109	VPMMFB007N800TU	N-ch	800	6	780	TO-220-F
110	VPMMFB017N850TU	N-Ch	850	17	250	TO-220-F
111	VPLMST003P020TR	P- ch	-20	-2.5	95	SOT-23
112	VPLMST004P020TR	P- ch	-20	-4.2	32	SOT-23
113	VPLMDP038P040TR	P- ch	-40	-38	13.5	TO-252
114	VPLMST001P060TR	P- ch	-60	-0.21	3.55	SOT-23
115	VPLMST003P060TR	P- ch	-60	-2.9	95	SOT-223



IGBTs

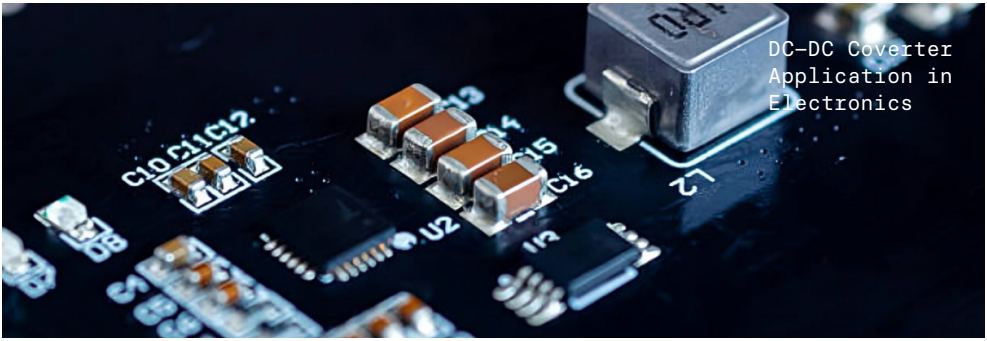
Sr.	iVP Part Number	Polarity	Collector-Emitter Voltage VCE [V]	Collector Current IC [A]	VCE (sat)[V]	Package
1	VPMIFB030N650TU	N-ch	650	30	1.65	TO-220F
2	VPMIPP050N1K2TU	N-ch	1200	50	2	TO-247
3	VPMIPP100N650TU	N-ch	650	100	1.85	TO-247
4	VPMIPP080N650TU	N-ch	650	80	1.8	TO-247
5	VPMIPP080N1K2TU	N-ch	1200	80	2.1	TO-247
6	VPMIPP150N1k2TU	N-ch	1200	150	1.8	TO-247-PLUS



DC – DC Converters

DC-DC converters convert direct current (DC) voltage from one level to another. They are essential to any power supply systems with many multimarket applications, such as Automotive (example, DC-DC charger), Solid-state drives (example, tablets, notebooks) and in Electronics in general (example, convert a 9V battery to 6V or 12V). The benefits of using DC-DC converter include high efficiency, low power dissipation and can help safeguard sensitive components. iVP offers a wide variety of DC-DC converters with various input-output voltage ranges, high efficiency and wide variety of packaging options. The table shows a summary of our available products. More to come.

DC–DC Coverter Application in Automotives



S. No.	Part No.	Input Voltage		Output Voltage		Output Current	Switching Frequency	Package
		Min	Max	Min	Max			
1	VPE2001	2.6	5.5	0	12	2.5	1 MHz	SOT-23-6L
2	VPE2002	2.9	12	5	14	6	500 KHz	E-SOP-8L
3	VPE2003	4.5	36	0.808	30	3	2 MHz	E-SOP-8L, TDFN-10L
4	VPE2004	4.5	40	0.805	30	3	2 MHz	E-SOP-8L
5	VPE2005	2.6	5.5	–	1.8	2	1 MHz	SOT-23-5L, SOT-23-6L
6	VPE2006	2.6	5.5	–	1.8	3	1 MHz	SOT-23-6L, TDFN-8L
7	VPE2007	2.6	5.5	–	1.8	2	1 MHz	TDFN-10L
		2.6	5.5	–	3.3			
8	VPE2008	4.5	60	0.8	48	1.5	1.5 MHz	E-SOP-8L
9	VPE2009	4.5	40	0.8	30	6	2.1 MHz	E-SOP-8L
10	VPE2010	4.5	18	1.05	5	3	600 KHz	TSOT-23-6
11	VPE2011	2.5	5.5	1.2	3.3	2.5	1 MHz	SOT-23-6
12	VPE2012	2.5	5.5	1.2	3.3	3	1 MHz	TDFN-8L

Low Dropout Regulators

S. No.	Part No.	Input Voltage		Output Voltage		Output Current	Package
		Min	Max	Min	Max		
1	VPE2013	0	42	1.3	6	0.15	SOT-23-5
2	VPE2014	3	42	1.3	6	0.15	SOT-23-5, SOT-89-3
3	VPE2015	2.7	20	1.3	6	0.015	SOT-23-5, SOT-89-3, and SOT-23-3
4	VPE2016	3	32	0	8	0.015	E-SOP-8, SOT-23-5
5	VPE2017	2.5	6.5	1.2	4.5	1.5	E-SOP-8L, SOT-223
6	VPE2018	1.7	5.5	0.8	4.5	0.3	SOT-23-5, uDFN-4, SOT-23-3 and TDFN-6
7	VPE2019	1.7	5.5	0.8	4	0.3	uDFN-4
8	VPE2020	1.8	5.5	0.8	4	0.25	uDFN-4, SOT-23-5, and SOT-23-3
9	VPE2021	1	5.5	0.8	5.5	2	E-SOP-8L
10	VPE2022	1	5.5	0.8	5.5	1	E-SOP-8L
11	VPE2023	1	5.5	0.8	5.5	2	E-SOP-8L
12	VPE2024	1	5.5	0.8	5.5	1	E-SOP-8L, SOT23-6L
13	VPE2025	1	5.5	0.8	5.5	3	E-SOP-8L
14	VPE2026	1	5.5	0.8	5.5	3	E-SOP-8L
15	VPE2027	2.2	5.5	1	4.5	0.3	SOT-23-5
16	VPE2028	2.5	5.5	1.2	3.3	0.6	SOT-23-5, TDFN-6
17	VPE2029	2.5	5.5	1.2	5	0.6	SOT-23-5, SOT-23-6

Advanced Intelligent Power Modules

Modules





Value Proposition

High Thermal Performance

High power density and reduced size while maintaining efficiency.

High Thermal Capacitance

Minimizes junction temperature ripples, enhancing reliability.

Patented Substrateless Packaging

Offers cost savings, size and form factor flexibility as well as easy scalability.

Intelligent Power Modules

Equipped with gate drivers and monitoring for current, voltage and temperature, enabling straight forward design and manufacturing.

Low Package Resistance & Inductance

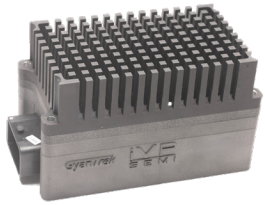
Reduces losses for an improved performance.

Applications

EV Traction Drivers, Chargers,DC – DC Converters, Solar Inverters, Solid-State Relays, Bi-Directional AC Switches and High Frequency Converters.

Explore our core advanced intelligent power module offerings →

EV Traction Inverter



Key Features

5 KW (48V, 150A)

Designed (patented) and Made in India

Suitable of ACIM, BLDC, PMSM

Integrated IPM + Controller Inside

OC, OV, UV, OT Protections, CAN Interface

Sr.	Parameter	Min	Type	Max	Units	Conditions
1	Output Power	–	–	5.0	KW	48V, T_{SINK} = 100°C
2	Operating Voltage	38	48	58	V	–
3	Continuous Current	_	_	250	A	T_{SINK} = 25°C
4	Continuous Current	–	–	150	A	T_{SINK} = 100°C
5	Peak Current * Note 1	–	–	350	A	T_{SINK} = 25°C
6	Switching Frequency	–	16	–	KHZ	–
7	Operating Temperature Range	- 40	–	125	°C	–
8	Operating Cycles	–	–	TBD	–	–
9	Communication Protocols		CAN		–	–
10	Feedbacks		Hall Sensors Encoder Back EMS		–	–
11	Dimensions	L: 153	W: 80	H: 92	MM	–

* Limited by the pulse width, T_{SINK}

Bi-Directional Battery Disconnect Switch

Key Features

100V, 300A Solid State Relay

Designed (patented) and Made in India

Integrated Power + Controller; CAN, LIN, RS485 Interface

Suitable for EV, CV, PV, Industrial Applications

Sr.	Parameter	Min	Type	Max	Units	Conditions
1	Operating Voltage	–	–	100	V	
2	Continuous Current	–	–	400	A	T_{SINK} = 25°C
3	Continuous Current	_	_	300	A	T_{SINK} = 50°C
4	Peak Current* Note 1	–	–	1200	A	T_{SINK} = 25°C
5	Precharge Current	3.8	4.8	5.8	A	T_{SINK} = 25°C
6	Precharge Time	–	-	–	Sec	Depends on BMS Command
7	Turn-ON delay time	–	TBD	–	µs	V_{BAT} = 48, T_{SINK} = 25°C
8	Turn-ON time	–	TBD	–	µs	V_{BAT} = 48, T_{SINK} = 25°C
9	Turn-OFF delay time	–	TBD	–	µs	V_{BAT} = 48, T_{SINK} = 25°C
10	Turn-OFF time	–	TBD	–	µs	V_{BAT} = 48, T_{SINK} = 25°C
11	Operating Temperature Range	- 40	–	125	°C	–
12	Operating Cycles	–	–	TBD	–	–
13	Communication Protocols		CAN RS 485		–	–
14	Dimensions	L:123	W: 108.6	H: 49.7	MM	–

* Limited by the pulse width, T_{SINK}

DC – DC Converter Module

The DC - DC Converter module is a compact, highly reliable low ripple IP67 rated module for Industrial and Automotive applications.

Key Features

Input Voltage	30VDC-72VDC	60VDC-90VDC
Output Voltage	14.3V	
Output Current	10A	20A
Efficiency	93%	93%
Ripple & Noise	75mV	
Operating temperature	-40 to +70°C (with over temperature protection)	
Constant current limit	8A(Programmable)	12A(Programmable)
Reverse voltage protection	Yes, Built into the converter	
Short circuit proof	Yes	
External ON/OFF	Yes 3.3V to 12V(To make OFF)	

Enclosure

Material & Colour	Aluminium (White/Black)	
Protection category	Ip67	
DC connection	Input /Output and ON/OFF	
Cable cross section, input	20AWG	
Cable cross section, output	16AWG	14AWG
Cable cross section, ON/OFF	26AWG	
Weight (kg)	280gm	470gm
Dimensions (h x w x d in mm)	35 x 55 x 90	68 x 90 x 51

STANDARDS

Safety	EN 60950
Emission	EN 61000-6-3, EN 55014-1
Immunity	EN 55014-2, EN 61000-6-1, EN 61000-6-2
Automotive Directive	ECE R10-4
Vibration	IEC 68-2-6: 10-150 Hz / 1.0 G

EV Charger Solution

EV Charger 55V/1.5kW is an Automotive grade portable charger suitable for lead acid LiFePO4 & Li-ion battery0based Two wheelers and Three wheelers. It operates under all types of harsh electrical and thermal environments and gives a very high performance.

Key Features

Wide operating input voltage (85 - 265 V) or (120 Vdc ~ 370Vdc) and temperature (-45°C to 65°C)

High efficiency of 91%

Low output ripple current increases battery life

Optimized charging algorithm for Li-ion, LiPeFo4 and Lead acid battery

Programmable CC and CV Limit

CAN Support

Protections:
- Input AC Unvoltage Protection
- Input AC Overvoltage Protection
- Output Overvoltage Protection
- Overload Protection
- Over Temperature Protection

Input Voltage: 85 - 265 Vac

Or Input Voltage: 120 Vdc ~ 370 Vdc

Output Voltage: 20 - 75 Vdc

Output Power: 1.5 KW

Output Ripple: 150 mA

Maximum Output Current: 22 A

Efficiency: Peak 91%

Communication: CAN Bus

Operating Temperature: -20°C to +65°C

Dimentions (L x W x H): 220 x 120 x 50 mm

Weight: 1.3 Kgs

4G LTE Cat 1 Module

It is ultra-low power, low-cost LTE Cat 1bis module designed for Telematic, Asset tracking and other Industrial applications.

This module consists of rich set of internet protocol, Industry standard interfaces and other features of the module make it suitable for a wide variety of M2M and IoT applications. The Vajra module supports all the LTE bands for the Indian market (B1, B3, B5, B8, B40 and B41). The module supports maximum DL speed of 10Mbps. With integrated Wi-Fi receiver, the module also supports indoor location tracking.

Key Features

3GPP R14 Cat.1 (single antenna mode) and Cat.1bis compliant

Frequency Band:
- LTE-FDD: B1, B3, B5, B8
- LTE-TDD: B40, B41

Data Rate:
- Maximum DL: 10 Mbps
- Maximum UL: 5 Mbps

Bandwidth:
- 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz

Interfaces:
- USB 2.0 with High Speed upto 480 Mbps
- USIM, eSIM and softSIM Interface
- MainUART (AT communication) & Debug UART
- SPI and I2C with configurable data rate
- Digital Audio through I2S
- 12-bit 4 channel ADC
- General purpose Inputs and Outputs

Electrical Characteristics

Power Supply: 3.2 V to 3.8 V

IO Level: 1.8 V

Software Features

User Datagram Protocol (UDP), Transmission Control Protocol (TCP), Datagram Transport Layer Security (DTLS), Transport Layer Security (TLS), Secure Sockets Layer (SSL), MQTT, Constrained Application Protocol (CoAP), HTTP(S), Remote Network Driver Interface Specification (RNDIS), Point to Point Protocol (PPP)

Cellular-based Global Terrestrial Positioning

Supports Indoor Location Positioning

Firmware Upgrade Over the Air (FOTA)

Operating System: Free RTOS

General Features

Operating Temperature Range: -35°C to +75°C

Extended Temperature Range: -40°C to +80°C

Dimensions: 32.00 mm x 29.00 mm x 4.0 mm

Weight: Approx. 8 g

LTE Cat 1 + GNSS + BLE Module

It is a low-power, cost-effective LTE Cat 1bis module for Telematics, Asset Tracking, and Industrial IoT. It supports Indian LTE bands (B1, B3, B5, B8, B40, B41) with speeds of 10 Mbps DL / 5 Mbps UL. The module integrates Wi-Fi for indoor positioning, GNSS for outdoor accuracy, and BLE 5.3 for lowpower connectivity and location services.

Features

4G Features:

3GPP R14 Cat.1 (single antenna) & Cat.1bis
Bands: LTE-FDD (B1, B3, B5, B8), LTE-TDD (B40, B41)
Data Rate: DL 10 Mbps, UL 5 Mbps
Bandwidth: 1.4–20 MHz
Interfaces: USB 2.0, USIM/eSIM/softSIM, UART (AT & Debug), SPI, I2C, I2S audio, 12-bit 4-ch ADC, GPIO
Memory: 16KB cache, 1MB SRAM, 4MB flash (2MB for user apps)

GNSS Features:

Dual-band L1+L5, supports GPS, NavIC, Galileo, Beidou
Accuracy: 2.5m CEP, 0.1m/s velocity, 0.12ns timing
TTFF (open sky): Hot 1s, Cold 30s, Reacq <1s
Sensitivity: up to -165dBm (tracking)
Update Rate: 1–10 Hz
Operational Limits: Alt <80,000m, Vel <515m/s
Phoenix engine: low power, autonomous operation

General Features

Operating Temperature Range: -35 °C to +75 °C
Extended Temperature Range: -40 °C to +80 °C
Dimensions: 32.00 mm × 29.00 mm × 4.0 mm
Weight: Approx. 11 g

BLE Features

Processor: 64 MHz Arm® Cortex-M4.
Bluetooth capabilities: BLE 5.3, 2 Mbps.
Memory: 192 KB Flash, 24 KB RAM.

Software Features

Operating system: Free RTOS
Protocols: UDP, TCP, DTLS, TLS, SSL, MQTT, CoAP, HTTP(S), RNDIS, PPP
Positioning: Cellular & Indoor support
FOTA (Firmware upgrade over the air)
OS: FreeRTOS

Electrical Characteristics

Power Supply: 3.2 V to 4.2 V
IO Level: 3.3V
Low power Current Consumption:

WiFi6 Module

The Wi-Fi 6 module is a high-performance, automotive- and industrial-grade connectivity solution designed to deliver fast, reliable, and power-efficient wireless communication.
With dual-band support (2.4 GHz and 5 GHz) and full compliance with IEEE 802.11ax (Wi-Fi 6) and earlier standards (a/b/g/n/ac), the module ensures seamless backward compatibility while unlocking next-gen features.

Features:

Wi-Fi6 companion IC with integrated RF
Dual-band 2.4 GHz and 5 GHz operation
Supports IEEE 802.11 ax and earlier standards (IEEE 802.11 a/b/g/n/ac)
Supports Target Wake Time (TWT), Orthogonal Frequency Division Multiple Access (OFDMA), Basic Service Set (BSS) Coloring
Supports WMM, WMM - Power Save, Wi-Fi Agile Multiband, Wi-Fi Direct
SPI or QSPI host interface, 3-wire or 4-wire coexistence interface

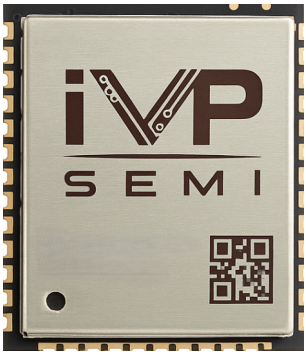
Electrical Characteristics:

Supply voltage range: 2.9 – 4.5 V
IO Level: 1.8V, 3.3V

General Features:

Dimensions: 14mm x 13.2mm x 2.4mm
Temperature Range: -35C to +75C

WiFi+BT Module



It is a Wi-Fi 6 + Bluetooth 5.4 + 802.15.4 (Thread and Zigbee-ready) combo chipset for ultra-low-power applications.
The wireless subsystem contains 2.4 GHz radio, Wi-Fi 802.11b/g/n/ax, Bluetooth/Bluetooth Low Energy, and 802.15.4 baseband/MAC designs

Available in different variants with the following features
- WIFI/BT/Matter
- WIFI/BT/BLE/matter
- WIFI/BT /BLE/Zigbee/matter

Note: The above variant is available with U.FL, chip, and PCB antennas

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Features

Microcontroller

- 32-bit RISC-V processor up to 325MHz

Memory

- 128 KB ROM, 4 Kb eFuse, and 1/2/4 KB OTP
- 484 KB on-chip SRAM (includes 32 KB I-Cache, 16 KB D-Cache)
- Supports up to 256 Mbit (32 MB) external flash memory

Software Features

This module supports both standalone and hosted modes:

Standalone (Hostless) Mode

- No need for an external microcontroller
- The module handles low-level protocol stacks and completes IoT application logic in standalone mode.

Hosted Mode

- Functions solely as a connectivity transceiver
- Main application logic runs on an external host processor
- Runs on FreeRTOS
- offers an open-source SDK (available on GitHub) and a Visual Studio Code extension for faster development.

Bluetooth

- Max Tx Power: +10dBm
- Active Tx Power: TBD
- Rx Sensitivity: -90 dBm
- Active Rx Power: TBD

Wi-Fi:

- Max Tx Power: +16 dBm
- Active Tx Power: TBD
- Rx Sensitivity: -67 dBm
- Active Rx Power: TBD

It supports a U.FL-based antenna, with optional support for pin and PCB antenna

Interfaces:

- It supports SDU, SD/MMC (SDH), SPI, UART, I2C, PWM, GPDAC, GPADC, ACOMP, and GPIO interfaces.
- It also supports additional interfaces for camera, display, MJPEG, audio codec, and Ethernet

Electrical Characteristics

Power Supply: 2.97V~3.63
IO Level: 1.8 V/3.3V

General Features

Operating Temperature Range:-40°C to +85 °C

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