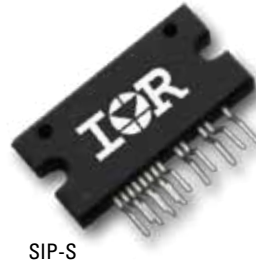


IGBTs Product Selection Guide



International
IOR Rectifier

IRAM

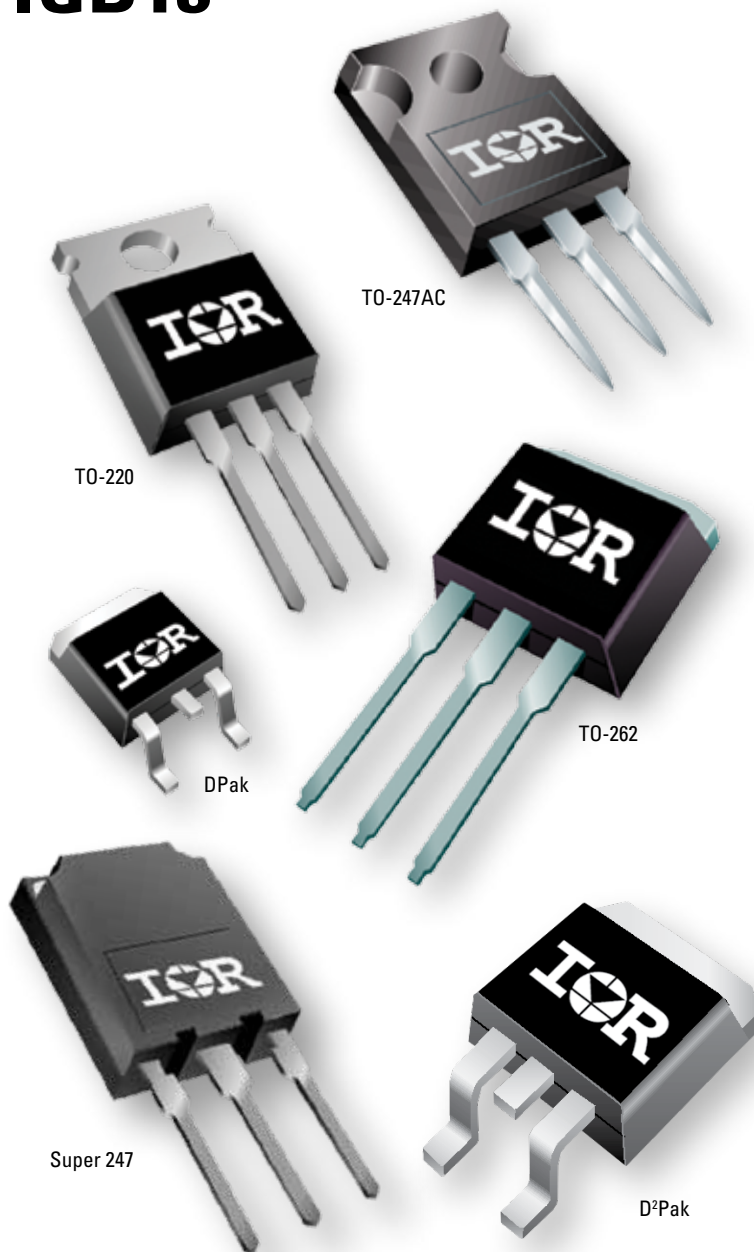


- MiniSip and SIP-S for low power applications up to 250W
- SIP1 and SIP2 are widely accepted for 6A, 10A, 16A & 20A modules
- SIP1A is the new Heavy-Duty generation IRAMs featuring new ICs, Trench and improved power cycling ruggedness, Pin compatible with SIP05
- SIP3 carries higher power
- SIP-0.5 (7 - 10A)

Integrated Power Modules

Part	Voltage & Shunt	Typical Load (W)	IO @ TC = 100°C (A RMS)	Package	Configuration
IRAM136-0461G	600V, Integr. Shunt	300W	2	SIP-1	3-phase, 600V + Input bridge
IRAMS06UP60A	600V Open Emitter	400W	3		
IRAMS06UP60B	600V Integr. Shunt				
IRAM136-0760A	600V Open Emitter	400W	3.5	SIP-05	3-phase, 600V
IRAM136-1060A	600V Open Emitter	750W	5		
IRAM136-1060B	600V Int. Shunt	750W	5		
IRAM136-1061A2	600V Open Emitter	750W	5	SIP-1A	3-phase, 600V
IRAMS10UP60A	600V Open Emitter	750W	5	SIP-1	
IRAMS10UP60B	600V Integr. Shunt				
IRAMX16UP60A	600V Open Emitter	1500W	8	SIP-2	
IRAMX16UP60B	600V Integr. Shunt				
IRAMX20UP60A	600V Open Emitter				
IRAMY20UP60B	600V Integr. Shunt	2500W	10	SIP-3	
IRAM136-3063B	600V Integr. Shunt	3000W	15		
IRAM136-3023B	150V Integr. Shunt	750W	15		
IRAM336-025SB	500V Integr. Shunt	200W	1	SIP-S	
IRAM109-015SD	500V No Shunt	200W	1		H-Bridge

IGBTs



- **PFC** - Optimized with low switching losses for operation at high frequency up to 100kHz.
- **High Efficiency Trench** - These IGBTs provide the lowest losses per given die area to enable more current to be delivered from the same package. These devices have a very good balance of switching and conduction losses enabling them to be used in a variety of applications with switching frequencies up to 60kHz in hard switching. These devices have short-circuit capability of 5μsec making them suitable for motor drive applications.
- **UPS, Solar Inverter** - Optimized for switching frequencies between 15-25 kHz they are typically used in UPS and Solar Inverters.
- **Plasma Display** - Optimized for Plasma Display applications. They offer high saturation currents and fast switching.
- **Low Frequency** - Optimized for lowest conduction losses, they are best suited for switching frequencies below 1kHz in applications such as Solar Inverter, UPS, Welding, HID.
- **Motor Drive** - Recommended for motor drive inverters. They are all co-packaged with freewheeling diode.

PFC

Part	V _{CES} (V)	Circuit	I _C @100C (A)	V _{CE(ON)} Max. (V)	Package	
IRGB20B60PD1PBF	600	Co-Pack	22	2.35	TO-220AB	
IRGP20B60PDPBF			22	2.35	TO-247AC	
IRGP35B60PDPBF			35	2.15	TO-247AC	
IRGP50B60PD1PBF		Discrete		45	2.35	TO-247AC
IRG4(B/IB)C20WPBF			6.5	2.6	D ² -Pak; TO-220AB; TO-220 FullPak	
IRG4(B/IB/P)C30WPBF			12	2.7	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC	
IRG4(B/P)C40WPBF			20	2.5	TO-262; D ² -Pak; TO-220AB; TO-247AC	
IRG4PC50WPBF			27	2.3	TO-247AC	
IRG4PF50WPBF	900		28	2.7	TO-247AC	

High Efficiency Trench

Part	V _{CE(S)} (V)	Circuit	IC Nominal	V _{CE(ON)} Max. (V)	Package
IRGB4059DPBF	600	Co-Pack	4	2.05	TO-220AB; TO-220 FullPak
IRG(B/I)4045DPBF			6	2	TO-220AB; TO-220 FullPak
IRG(B/I)4060DPBF			8	1.85	TO-220AB; TO-220 FullPak
IRG(B/I)4064DPBF			10	1.91	TO-220AB; TO-220 FullPak
IRG(S/B/I)4056D			12	1.85	D ² -Pak; TO-220AB; TO-220 FullPak
IRG(B/I)4061DPBF			18	1.95	TO-220AB; TO-220 FullPak
IRG(SL/S/B/I/P)4062DPBF			24	1.95	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRGP4069DPBF			35	1.85	TO-247AC
IRGP4063DPBF			48	2.14	TO-247AC
IRGP4069PBF			Discrete	35	1.85
IRGP4063PBF		48		2.14	TO-247AC

UPS, Solar Inverter

Part	V _{CE(S)} (V)	Circuit	IC @100C (A)	V _{CE(ON)} Max. (V)	Package
IRG4(B/IB)C10UDPBF	600	Co-Pack	5	2.6	TO-220AB; TO-220 FullPak
IRG4BC15UDPBF			5.5	1.95	TO-262; D ² -Pak; TO-220AB
IRG4(B/IB)C20UDPBF			6.5	2.1	D ² -Pak; TO-220AB; TO-220 FullPak
IRG4(B/IB/P)C30UDPBF			12	2.1	TO-220AB; TO-220 FullPak; TO-247AC
IRG4PC40UDPBF			20	2.1	TO-247AC
IRGP20B60PDPBF			22	2.35	TO-247AC
IRG4PC50UDPBF			27	2	TO-247AC
IRGP35B60PDPBF			35	2.15	TO-247AC
IRGP50B60PDPBF			42	2.2	TO-247AC
IRG4PSC71UDPBF			60	2	TO-274AA
IRG4RC10UPBF		Discrete	5	2.6	D-Pak
IRG4(B/P)C20UPBF			6.5	2.1	TO-220AB; TO-247AC
IRG4(B/P)C30UPBF			12	2.1	D ² -Pak; TO-220AB; TO-247AC
IRG4(B/P)C40UPBF			20	2.1	TO-220AB; TO-247AC
IRG4PC50UPBF			27	2	TO-247AC
IRG4PC60UPBF			40	2	TO-247AC
IRG4PSC71UPBF			60	2	TO-274AA
IRG4PF50WDPBF			900	Co-Pack	28
IRG4PF50WPBF	Discrete	28		2.7	TO-247AC
IRG4PH40UDPBF	1200	Co-Pack	15	3.5	TO-247AC
IRGP20B120UD-EP			20	3.05	TO-247AC
IRG4PH50UDPBF			24	3.7	TO-247AC
IRGPS40B120UDPBF			40	3.5	TO-274AA
IRG7PH42UDPBF			45	2	TO-247AC
IRG4PSH71UDPBF					TO-274AA
IRG4PH40UPBF		Discrete	15	3.5	TO-247AC
IRGP20B120U-EP			20	3.45	TO-247AC
IRG4PH50UPBF			24	3.7	TO-247AC
IRGPS40B120UPBF			40	3.5	TO-274AA
IRG4PSH71UPBF			50	2.7	TO-274AA
IRG7PH42UPBF					TO-247AC

Plasma Display

Part	VCES (V)	Circuit	IC @100C (A)	VCE(ON) Max. (V)	Package
IRG(S/B/I/P)4086PBF	300-330	Discrete	40	2.1	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRG7(S/I)319UPBF			40	1.43	D ² -Pak; TO-220 FullPak
IRG7(S/I)313UPBF			20	1.45	D ² -Pak; TO-220 FullPak
IRG6(S/I)330UPBF			40	2.1	D ² -Pak; TO-220 FullPak
IRG6(S/I)320UPBF			25	1.65	D ² -Pak; TO-220 FullPak
IRG6IC30UPBF	600		12	1.92	TO-220 FullPak

Low Frequency

Part	VCES (V)	Circuit	IC @100C (A)	VCE(ON) Max. (V)	Package
IRG4BC10SDPBF	600	Co-Pack	8	1.7	TO-262;D ² -Pak; TO-220AB; TO-220 FullPak
IRG4BC20SDPBF			10	1.6	D ² -Pak; TO-220AB
IRG4PC50SDPBF			41	1.36	TO-247AC
IRG4(R/B)C10SPBF		Discrete	8	1.7	D-Pak; TO-220AB
IRG4BC20SPBF			10	1.6	TO-220AB
IRG4(B/I/P)C30SPBF			18	1.6	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRG4(B/P)C40SPBF			31	1.5	TO-220AB; TO-247AC
IRG4PC50SPBF			41	1.36	TO-247AC
IRG4PH50SPBF	1200		33	1.7	TO-247AC

Motor Drive

Part	VCES (V)	TSC > 10usec	Switching Frequency	IC @ 100C (A)	VCE(ON) Max. (V)	Package	
IRGP4072DPBF	300		4-20 kHz	40	1.7	TO-247AC	
IRGR3B60KD2PBF	600	x	4-20 kHz	4.2	2.4	D-Pak	
IRG(SL/S/B)4B60KD1PBF		x	4-20 kHz	6.8	2.5	TO-262; D ² -Pak; TO-220AB	
IRG(SL/S/B/IB)6B60KDPBF		x	4-20 kHz	7	2	TO-262; D ² -Pak; TO-220AB; To-220 FullPak	
IRG1B7B60KDPBF		x	4-20 kHz	8	2.2	TO-220 FullPak	
IRG4(B/IB)C20FDPBF				1-8 kHz	9	2	TO-220AB; TO-220 FullPak
IRG4(B/IB)C20KDPBF		x	4-20 kHz	9	2.8	D ² -Pak; TO-220AB; TO-220 FullPak	
IRG(SL/S/B/IB)10B60KDPBF		x	4-20 kHz	12	2.2	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak	
IRG(SL/S/B/IB)15B60KDPBF		x	4-20 kHz	15	2.2	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak	
IRG4(B/IB/P)C30KDPBF		x	4-20 kHz	16	2.7	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC	
IRG4(B/IB/P)C30FDPBF				1-8 kHz	17	1.8	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRG4PC40KDPBF		x	4-20 kHz	25	2.6	TO-247AC	
IRG4PC40FDPBF				1-8 kHz	27	1.7	TO-247AC
IRG4PC50KDPBF		x	4-20 kHz	30	2.2	TO-247AC	
IRGP30B60KDPBF		x	4-20 kHz	30	2.35	TO-247AC	
IRG4PC50FDPBF				1-8 kHz	39	1.6	TO-247AC
IRG4PSC71KDPBF		x	4-20 kHz	60	2.3	TO-274AA	
IRG4PH20KDPBF		1200	x	4-20 kHz	5	4.3	TO-247AC
IRG4PH30KDPBF	x		4-20 kHz	10	4.2	TO-247AC	
IRG4PH40KDPBF	x		4-20 kHz	15	3.4	TO-247AC	
IRG7PH30K10D	x		4-20 kHz	16	2.35	TO-247AC	
IRG4PH50KDPBF	x		4-20 kHz	24	3.5	TO-247AC	
IRGP30B120KD-EP	x		4-20 kHz	30	2.28	TO-247AC	
IRG4PSH71KDPBF	x		4-20 kHz	42	3.9	TO-274AA	
IRGPS60B120KDPBF	x		4-20 kHz	60	2.75	TO-274AA	

For Die Portfolio please contact IR Die Sales at diesales@irf.com

Product Line	Applications	Key Products
 <p>Energy Saving Products</p> <p>Integrated design platforms that enable customers to add energy-conserving features that achieve lower operating energy costs and manufacturing Bill of Material (BOM) costs.</p>	<ul style="list-style-type: none"> • Appliances • Audio • Display • Industrial • Lighting • SMPS 	<ul style="list-style-type: none"> • Digital Control ICs • High-Voltage ICs • IGBTs • IRAM Integrated Power Modules • Intelligent Power Switches • MERs
 <p>Enterprise Power</p> <p>Optimized power management system solutions that deliver benchmark power density, efficiency and performance in enterprise power.</p>	<ul style="list-style-type: none"> • Servers • Storage Networks • Switchers & Routers • Workstations • Notebooks • Game Stations • Set-Top Box 	<ul style="list-style-type: none"> • DirectFET® • Low-Voltage ICs • Sup/BBuck™ • XPhase® • Power Monitor IC • iPOWIR®
 <p>Automotive</p> <p>Automotive grade power management solutions qualified to meet the needs of 12V, 24V and HE/EV applications with a zero defect goal.</p>	<ul style="list-style-type: none"> • AC and DC Motor Drives • Powertrain / Engine control • Body Electronics • Lighting • Class D Audio • Heavy Loads and Actuators 	<p>Automotive Qualified:</p> <ul style="list-style-type: none"> • HEXFET® Power MOSFETs • Intelligent Power Switches • Driver ICs (Low-, Mid- and High-Voltage) • IGBTs for Motor Drives, Various Loads
 <p>Benchmark MOSFETs</p> <p>IR continues to lead the industry by offering power MOSFETs with the lowest $R_{DS(on)}$ and widest range of packages up to 250V for a diverse range of applications.</p>	<ul style="list-style-type: none"> • Audio • Computing • Communications • Motor Control • Power Supply • Synchronous Rectification 	<ul style="list-style-type: none"> • Discrete HEXFET® MOSFETs • Dual HEXFET® MOSFETs • FETKY®
 <p>HiRel</p> <p>Our discrete components, complex hybrid power module assemblies and rugged DC-DC converters utilize leading-edge power technology which, together with demanding environmental specifications help engineers to meet their toughest design challenges.</p>	<ul style="list-style-type: none"> • Space • Military • Commercial Aviation • Rugged Industrial • Medical 	<ul style="list-style-type: none"> • RAD-Hard MOSFETs • Power Modules/Hybrid Solutions • Motor Control Solutions • DC-DC Converters