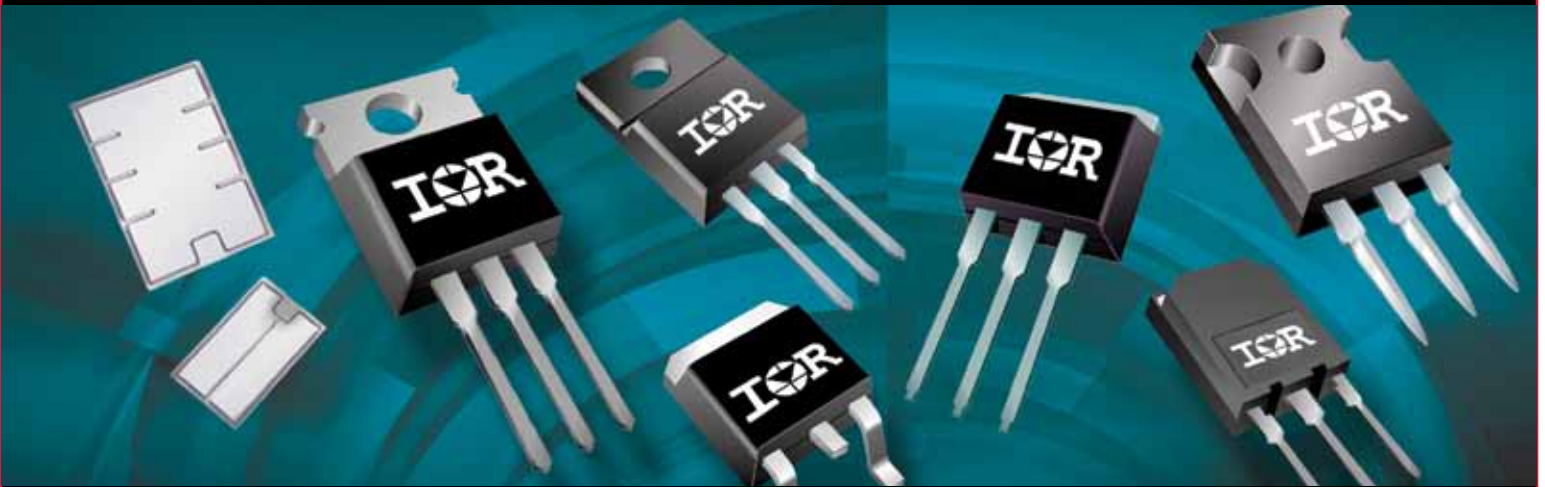


IGBTs Product Selection Guide



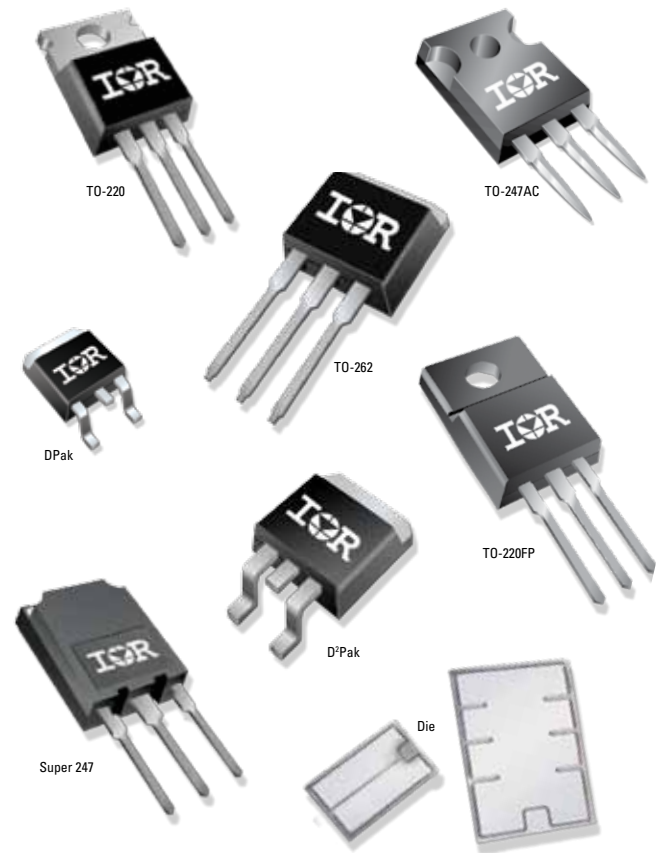
International
IR Rectifier
THE POWER MANAGEMENT LEADER

IGBTs

IR offers a wide portfolio of IGBTs allowing customers to meet design and performance goals. Various technologies such as NPT (Non-Punch Through) and Trench allow lowest switching and conduction losses to increase efficiency, reduce thermal problems and improve power density.

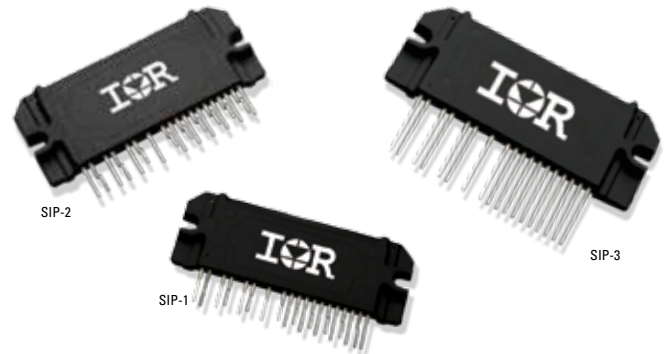
- **PFC** - Designed with low switching losses for operation at high frequency up to 100kHz.
- **UPS, Solar Inverter** - Designed for switching frequencies between 15-25 kHz they are typically used in UPS and Solar Inverters.
- **Plasma Display** - Designed for Plasma Display applications. They offer high saturation currents and fast switching.
- **Welding, HID** - Designed for lowest conduction losses, they are best suited for switching frequencies below 1kHz in applications .
- **Motor Drive** - Recommended for motor drive inverters. They are all co-packaged with freewheeling diode.
- **Die** - Most IGBTs are available on Die. Please contact our Die Sales Team if you require any further information.

Online IGBT Selection Tool – mypower.irf.com/igbt



IRAM

- 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
- SIP3 carries higher power



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				
IRAM136-1061A2	600V Open Emitter	750W	5	SIP-1A	
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	2500W	10		
IRAMY20UP60B	600V Integr. Shunt				
IRAM136-3063B	600V Integr. Shunt	3000W	15		
IRAM136-3023B	150V Integr. Shunt	750W	15		3-phase, 150V

Product Selector IGBT (Single)

Package	Switching	Frequency	Voltage	Part Number
IGBT (Single)	Soft	Ultrafast <30KHz	300V	IRG7x3/AxxU
			600V	IRG7xCxxU
			1200V	IRG7xHxxU
	Hard	Standard <1KHz	600V	IRG4xxS
			1200V	IRG7xxS
			1200V	IRG4xxS
		Fast 1–8KHz	600V	IRG4xxF
			1200V	IRG7xxF
		Ultra Fast 8-30KHz	600V	IRG4xxU
				IRG4xxK*
				IRGx4xxx*
			1200V	IRGxxBxxK*
				IRG4xxU
				IRG4xxK*
				IRG7xxU
				IRG7xxK10*
				IRGxxBxxU
				IRGxxBxxK*
				IRG4xxW
				IRGxxBxxP
				IRG4xxW
		Warp 30-150KHz	600V	
			900V	

Product Selector IGBT (Co-Pack)

Package	Switching	Frequency	Voltage	Part Number
IGBT (Co-Pack)	Soft	Ultrafast <30KHz	300V	IRG7x3/AxxUD
			600V	IRG7xCxxUDx
			1200V	IRG7xHxxUDx
	Hard	Standard <1KHz	600V	IRG4xxSD
			1200V	IRG7xxSD
			1200V	IRG4xxSD
		Fast 1–8KHz	600V	IRG4xxFD
			1200V	IRG7xxFD
		Ultra Fast 8-30KHz	600V	IRG4xxUD
				IRG4xxKD*
				IRGx4xxxD*
			1200V	IRGxxBxxKD
				IRG4xxUD
				IRG4xxKD*
				IRG7xxUD
				IRG7xxK10D*
				IRGxxBxxUD
				IRGxxBxxKD*
				IRG4xxWD
				IRGxxBxxPD
				IRG4xxWD
		Warp 30-150KHz	600V	
			900V	

PFC

Part	VCES (V)	Circuit	IC @100C (A)	VCE(ON) Max. (V)	Package
IRGB20B60PD1PBF	600	Co-Pack	22	2.35	TO-220AB
IRGP20B60PDPBPF			22	2.35	TO-247AC
IRGP35B60PDPBPF			35	2.15	TO-247AC
IRGP50B60PD1PBF		Discrete	45	2.35	TO-247AC
IRG4(B/IB)C20WVPBF			6.5	2.6	D ² -Pak; TO-220AB; TO-220 FullPak
IRG4(B/IB/P)C30WVPBF			12	2.7	D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRG4(B/P)C40WVPBF			20	2.5	TO-262; D ² -Pak; TO-220AB; TO-247AC
IRG4PC50WVPBF			27	2.3	TO-247AC
IRG4PF50WVPBF	28		2.7	TO-247AC	
IRGP4069PBF	600		35	1.85	TO-247AC
IRGP4063PBF		48	2.14	TO-247AC	
IRGP4066PBF		90	2.1	TO-247AC	

Plasma Display

Part	VCES (V)	Circuit	IC @100C (A)	Icpeak (A)	VCE(ON) Max. (V)	Package
IRG7I319UPBF	330	Discrete	15	170	1.43	TO-220 FullPak
IRG7(R/S/I)313UPBF			12	160	1.45	DPAK, D ² -Pak; TO-220 FullPak
IRG7IA19UPBF	360		15	170	1.52	TO-220 FullPak
IRG7PA19UPBF			15	300	1.52	TO247AC
IRG7IA13UPBF			12	160	1.52	TO-220 FullPak
IRG7(S/I)C28UPBF	600		40	225	1.95	D ² PAK, TO220 FullPak

UPS, Solar Inverter

Part	VCES (V)	Circuit	IC @100C (A)	VCE(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; D2-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
IRGP20B60PDPBPF			22	2.35	TO-247AC
IRG4PC50UDPBF			27	2	TO-247AC
IRGP35B60PDPBPF			35	2.15	TO-247AC
IRGP50B60PDPBPF			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
IRG4PF50WDPBPF	900	Co-Pack	28	2.7	TO-247AC
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			50	2.7	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			45	2	TO-247AC

UPS, Solar Inverter Continued

Part	VCES (V)	Circuit	IC @100C (A)	VCE(ON) Max. (V)	Package
IRG7PH35U	1200	Discrete	35	2.2	TO-247AC
IRG7PH46U			75	2	TO-247AC
IRG7PH50U			90	2	TO-247AC
IRG7PH35UD		Co-Pack	25	2.2	TO-247AC
IRG7PH46UD			57	2	TO-247AC
IRG7PH50UD			70	2	TO-247AA

Welding, HID

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		8-30 kHz	40	1.7	TO-247AC
IRGB4059DPBF	600		8-30 kHz	4	2.05	TO-220AB
IRGR3B60KD2PBF		x	8-30 kHz	4.2	2.4	D-Pak
IRGB4045DPBF			8-30 kHz	6	2	TO-220AB
IRG(SL/S/B)4B60KD1PBF		x	8-30 kHz	6.8	2.5	TO-262; D ² -Pak; TO-220AB
IRG(SL/S/B/IB)6B60KDPBF		x	8-30 kHz	7	2	TO-262; D ² -Pak; TO-220AB; To-220 FullPak
IRGIB7B60KDPBF		x	8-30 kHz	8	2.2	TO-220 FullPak
IRGB4060DPBF			8-30 kHz	8	1.85	TO-220AB
IRG4(B/IB)C20FDPBF			1-8 kHz	9	2	TO-220AB; TO-220 FullPak
IRG4(B/IB)C20KDPBF		x	8-30 kHz	9	2.8	D ² -Pak; TO-220AB; TO-220 FullPak
IRGB4064DPBF			8-30 kHz	10	1.91	TO-220AB
IRG(SL/S/B/IB)10B60KDPBF		x	8-30 kHz	12	2.2	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak
IRGB4056DPBF			8-30 kHz	12	1.85	D ² -Pak; TO-220AB
IRG(SL/S/B/IB)15B60KDPBF		x	8-30 kHz	15	2.2	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak
IRG4(B/IB/P)C30KDPBF		x	8-30 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
IRGB4061DPBF			8-30 kHz	18	1.95	TO-220AB
RG(SL/S/B/I/P)4062DPBF			8-30 kHz	24	1.95	TO-262; D ² -Pak; TO-220AB; TO-220 FullPak; TO-247AC
IRG4PC40KDPBF		x	8-30 kHz	25	2.6	TO-247AC
IRG4PC40FDPBF			1-8 kHz	27	1.7	TO-247AC
IRG4PC50KDPBF		x	8-30 kHz	30	2.2	TO-247AC
IRGP30B60KDPBF		x	8-30 kHz	30	2.35	TO-247AC
IRGP4069DPBF			8-30 kHz	35	1.85	TO-247AC
IRG4PC50FDPBF			1-8 kHz	39	1.6	TO-247AC
IRGP4063DPBF			8-30 kHz	48	2.14	TO-247AC
IRG4PSC71KDPBF		x	8-30 kHz	60	2.3	TO-274AA
IRG4PH20KDPBF	1200	x	8-30 kHz	5	4.3	TO-247AC
IRG4PH30KDPBF		x	8-30 kHz	10	4.2	TO-247AC
IRG4PH40KDPBF		x	8-30 kHz	15	3.4	TO-247AC
IRG7PH30K10D		x	8-30 kHz	16	2.35	TO-247AC
IRG4PH50KDPBF		x	8-30 kHz	24	3.5	TO-247AC
IRGP30B120KD-EP		x	8-30 kHz	30	2.28	TO-247AC
IRG4PSH71KDPBF		x	8-30 kHz	42	3.9	TO-274AA
IRGPS60B120KDPBF		x	8-30 kHz	60	2.75	TO-274AA

Product Line	Applications	Key Products
 Energy Saving Products Integrated design platforms that enable customers to add energy-conserving features that achieve lower operating energy costs and manufacturing Bill of Material (BOM) costs.	• Appliances • Audio • Display • Industrial • Lighting • SMPS	• Digital Control ICs • High-Voltage ICs • IGBTs • IRAM Integrated Power Modules • Intelligent Power Switches • MERs
 Enterprise Power Optimized power management system solutions that deliver benchmark power density, efficiency and performance in enterprise power.	• Servers • Storage Networks • Switchers & Routers • Workstations • Notebooks • Game Stations • Set-Top Box	• DirectFET® • Low-Voltage ICs • Sup/IRBuck™ • XPhase® • Power Monitor IC • iPOWIR®
 Automotive Automotive grade power management solutions qualified to meet the needs of 12V, 24V and HEV/EV applications with a zero defect goal.	• AC and DC Motor Drives • Powertrain / Engine control • Body Electronics • Lighting • Class D Audio • Heavy Loads and Actuators	Automotive Qualified: • HEXFET® Power MOSFETs • Intelligent Power Switches • Driver ICs (Low-, Mid- and High-Voltage) • IGBTs for Motor Drives, Various Loads • DirectFET® 2
 Benchmark MOSFETs 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.	• Audio • Computing • Communications • Motor Control • Power Supply • Synchronous Rectification	• Discrete HEXFET® MOSFETs • Dual HEXFET® MOSFETs • FETKY®
 HiRel 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.	• Space • Military • Commercial Aviation • Rugged Industrial • Medical	• RAD-Hard MOSFETs • Power Modules/Hybrid Solutions • Motor Control Solutions • DC-DC Converters