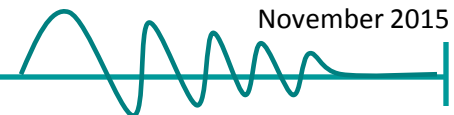




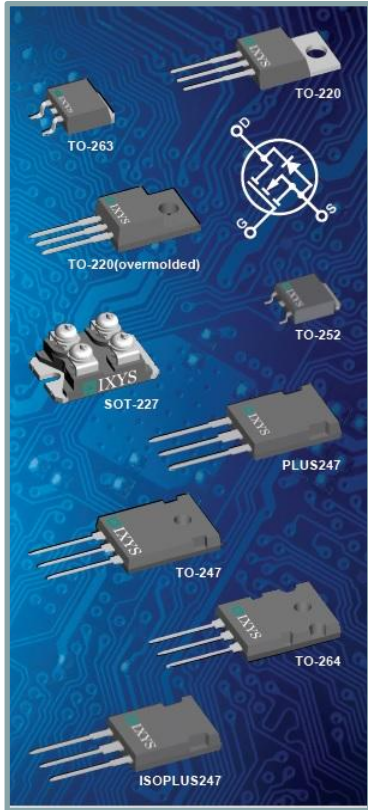
650V Ultra Junction X2-Class Power MOSFETs

IXYS Corporation



Product Line Introduction (650V Ultra Junction X2-Class MOSFETs)

A Better Technology Than Super Junction FETs!



- Manufactured using a charge compensation principle and proprietary process technology
- Low on-state resistance $R_{DS(on)}$ and gate charge Q_g
- Broad selection of devices (more than 22 parts so far)
- From 2A to 120A current ratings ($T_C = 25^\circ\text{C}$)
- Higher efficiency
- High power densities
- Easy to mount
- Low package inductance
- Available in international standard packages: TO-252, TO-220 (standard or overmolded), TO-263, TO-247, PLUS247™, TO-264, SOT-227)

Key Technology Advantages

Ultra Junction Technology (combination of charge compensation principle and IXYS process technology)

- Better Figure of Merit ($R_{DS(on)} \times Q_g$)
 - Significantly reduced on-state resistance and gate charge
 - Lower energy stored in output capacitance
 - Higher efficiency at both heavy and light loads
 - Low conduction and switching losses
 - Low gate drive requirements

- Ruggedness
 - Superior dv/dt performance (50V/ns)
 - Avalanche rated
 - Robustness against device failure caused by voltage spikes and turn-on of parasitic bipolar transistors inherent in the MOSFET structure

- Positive temperature coefficient of on-state resistance
 - Parallel operation of multiple devices

Available Parts

A wide selection of Ultra Junction X2-Class MOSFETs!

Part Number	V_{DSS} (V)	I_{D25} $T_C = 25^\circ\text{C}$ (A)	$R_{DS(on)max}$ $T_J = 25^\circ\text{C}$ (Ω)	C_{iss} typ (pF)	$Q_{g(on)}$ typ (nC)	t_{rr} typ (ns)	$R_{\theta JC}$ max ($^\circ\text{C}/\text{W}$)	P_D max (W)	Package Type
IXTY2N65X2	650	2	2.3	180	4.3	137	2.27	55	TO-252
IXTP2N65X2	650	2	2.3	180	4.3	137	2.27	55	TO-220
IXTP4N65X2	650	4	0.85	455	8.3	160	1.56	80	TO-220
IXTP8N65X2M	650	4	0.55	800	12	200	3.9	32	TO-220 (overmolded)
IXTY4N65X2	650	4	0.85	455	8.3	160	1.56	80	TO-252
IXTA4N65X2	650	4	0.85	455	8.3	160	1.56	80	TO-263
IXTY8N65X2	650	8	0.5	800	12	200	0.83	150	TO-252
IXTA8N65X2	650	8	0.5	800	12	200	0.83	150	TO-263
IXTP8N65X2	650	8	0.5	800	12	200	0.83	150	TO-263
IXTA12N65X2	650	12	0.3	1100	17	220	0.69	180	TO-263
IXTH12N65X2	650	12	0.3	1100	17	220	0.69	180	TO-247
IXTP12N65X2	650	12	0.3	1100	17	220	0.69	180	TO-220
IXTH34N65X2	650	34	0.105	3120	53	400	0.22	540	TO-247
IXTH48N65X2	650	48	0.068	4420	77	400	0.19	660	TO-247
IXTR102N65X2	650	54	0.033	10900	152	450	0.38	330	ISOPLUS247
IXTH62N65X2	650	62	0.052	5940	104	420	0.16	780	TO-247
IXTN102N65X2	650	76	0.03	10900	152	450	0.21	595	SOT-227
IXTH80N65X2	650	80	0.04	7753	144	400	0.14	890	TO-247
IXTX102N65X2	650	102	0.03	10900	152	450	0.12	1040	PLUS247
IXTK102N65X2	650	102	0.03	10900	152	450	0.12	1040	TO-264
IXTX120N65X2	650	120	0.024	13600	240	410	0.1	1250	PLUS247
IXTK120N65X2	650	120	0.024	13600	240	410	0.1	1250	TO-264

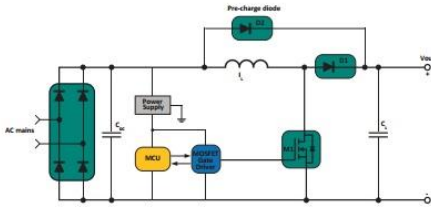


Applications

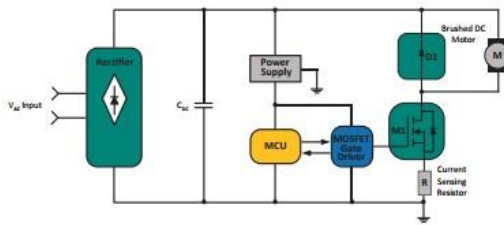
Ideal for Power Factor Correction (PFC) circuits and hard-switching power supplies



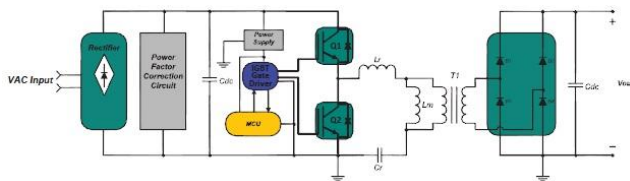
Power Factor Correction (PFC) circuits



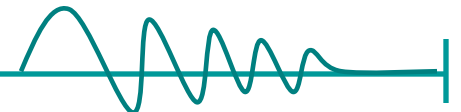
Brushed DC Motor Drive



Half-bridge resonant power supply



- Power Factor Correction (PFC) circuits
- Switched-mode and resonant mode power supplies
- DC-DC converters
- AC and DC motor drives
- Robotic and servo control
- Solar inverters
- Lighting control



Competitive Landscape

	IXTH34N65X2 (IXYS)	STW45N65M5 (STMicroelectronics)
Technology	Ultra Junction X2-Class	MDmesh™ M5
V _{DSS}	650V	650V
I _D @ T _j =25 °C	34A	35A
R _{DS(on)} (max)	105mΩ	78mΩ
Q _g (typ)	53nC	82nC
t _{rr} (typ)	400ns	392ns
Q _{RM} (typ)	3.5μC	7.4μC
dv/dt	50V/ns	50V/ns
R _{thJC} (max)	0.22 °C/W	0.6 °C/W
P _D	540W	210W
Package type	TO-247	TO-247

The IXYS part achieves a higher efficiency and cooler system performance.

- Lower (better) Figure of Merit ($R_{DS(on)} \times Q_g$)
- Lower reverse recovery charge (Q_{RM})
- Lower thermal resistance (R_{thJC})



The World OF IXYS

Industry Mind Share

Strong Product Promotion and Focus

Joint Strategic and Marketing Programs

Broad Technologies with Strong Power Solutions

Great Partner for Demand Creation

Creating New Products For Today and Tomorrow's Needs

IXYS POWER, IC, and Microcontroller Solutions