

1000V to 1200V Polar Standard and HiPerFET™ Power MOSFETs

NEXT GENERATION N-CHANNEL POWER MOSFETS

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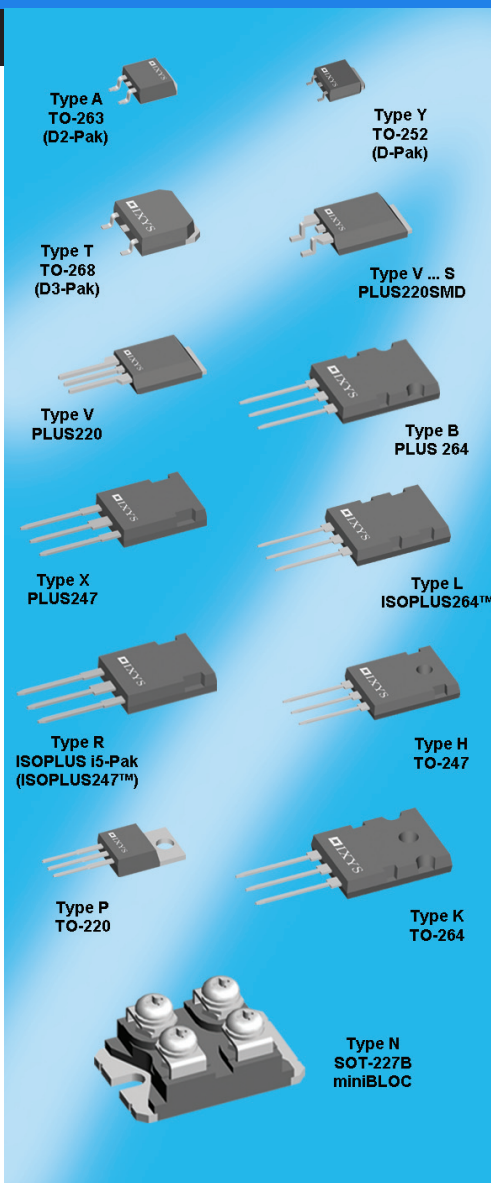
OVERVIEW

These new 1000-1200V Standard and HiPerFET™ additions to the IXYS Polar™ Power MOSFET family are designed to improve the performance of high voltage power conversion systems. IXYS recognizes that both voltage rating and $R_{DS(on)}$ are critical for reliable and efficient power conversion. Polar Power MOSFETs improve efficiency by significantly reducing typical on-resistance $R_{DS(on)}$ by 20% through the utilization of IXYS proprietary technology. Their ruggedness and higher voltage ratings will improve reliability as they all feature a fast intrinsic body diode with low reverse recovery charge.

IXYS now offers parts rated at 1000V, 1100V and 1200V to facilitate optimum part selection. All of these Polar Power MOSFETs are offered in standard packages and a variety of IXYS ISOPLUS packages with integral backside case isolation. The IXTA06N120P (1200V, 0.6A, $R_{DS(on)} = 32 \Omega$) and IXFB44N100P (1000V, 44A, $R_{DS(on)} = 0.220 \Omega$) illustrate the range in power handling capabilities of this new product offering.

IXYS' HiPerFETs are targeted at hard switching inverter and power supply applications. They are used in demanding and high reliability IT and telecom infrastructure applications that require efficient switching and energy conversion in tight enclosures. In addition, these Polar Power MOSFETs are used in products where reduced size and weight are important features. Other common, very high voltage applications include power supplies, inverters, high-voltage lighting, industrial machinery and medical equipment. These rugged Polar Power MOSFETs are suitable for high frequency switching under challenging operating conditions. IXYS will continue to grow the high voltage product line with an ongoing plan to increase the value offered in the Polar Power MOSFET family.

IXYS offers a full range of standard packages, including the D3-pak, and a full range of surface mount and discrete packages... TO-220, TO-252, TO-247, TO-268, SOT-227B, etc. In addition, versions are offered in IXYS proprietary ISOPLUS™ packages, providing UL recognized 2500V electrical isolation junction-to-case with superior thermal performance.



FEATURES

- Up to 20% Lower $R_{DS(on)}$
- Lower thermal impedance and increased power handling
- Excellent ruggedness and dV/dt capability
- Incorporates fast intrinsic body diodes with very low Q_{rr} and T_{rr}
- Cost-effective
- ISOPLUS™ high performance package options

BENEFITS

- Increased current handling capability
- Maximized package efficiency
- Reduced component count
- Reduced circuit complexity
- Greater reliability

APPLICATIONS

- Hard switching inverters
- Power supplies
- High voltage lighting
- Industrial machinery
- Medical equipment

Polar™ (1000-1200V) Standard and HiPerFET Power MOSFETs

Part Number	Technology	V _{DSS} max (V)	I _D (cont) T _C =25°C (A)	R _{ds(on)} max T _J =25°C (Ω)	C _{iss} typ (pF)	Q _s typ (nC)	t _{rr} IXT=Typ IXF=Max (ns)	R _{(th)JC} max (°C/W)	Pd (W)	Package Style
1000 Volt										
IXT(1)08N100P	Polar MOSFET™	1000	0.8	20.0000	300	11.3	750	3.000	42	A, P, Y
IXT(1)1N100P	Polar MOSFET™	1000	1.0	15.0000	400	15.5	750	2.500	50	A, P, Y
IXT(1)1R4N100P	Polar MOSFET™	1000	1.4	11.0000	500	17.8	750	2.000	63	A, P, Y
IXT(1)2N100P	Polar MOSFET™	1000	2.0	7.5000	630	24.3	800	1.450	86	A, P, Y
IXT(1)3N100P	Polar MOSFET™	1000	3.0	4.8000	1220	39.0	820	1.000	125	A, H, P
IXF(1)15N100P(2)	Polar HiPerFET™	1000	15.0	0.7600	6200	97.0	300	0.230	543	H, V, V ... S
IXF(1)20N100P	Polar HiPerFET™	1000	20.0	0.5700	8500	126.0	300	0.190	660	H, T
IXFR20N100P	Polar HiPerFET™	1000	11.0	0.6400	8500	126.0	300	0.540	230	R
IXF(1)26N100P	Polar HiPerFET™	1000	26.0	0.3900	14000	197.0	300	0.160	780	K, X
IXFN26N100P	Polar HiPerFET™	1000	23.0	0.3900	14000	197.0	300	0.210	595	N
IXFR126N100P	Polar HiPerFET™	1000	15.0	0.4300	14000	197.0	300	0.430	290	R
IXF(1)32N100P	Polar HiPerFET™	1000	32.0	0.3200	17000	225.0	300	0.130	960	K, X
IXFN32N100P	Polar HiPerFET™	1000	27.0	0.3200	17000	225.0	300	0.180	690	N
IXFR32N100P	Polar HiPerFET™	1000	18.0	0.3400	17000	225.0	300	0.390	320	R
IXFN38N100P	Polar HiPerFET™	1000	38.0	0.2100	26000	350.0	300	0.125	1000	N
IXFL38N100P	Polar HiPerFET™	1000	29.0	0.2300	26000	350.0	300	0.240	520	L
IXFB44N100P	Polar HiPerFET™	1000	44.0	0.2200	22000	305.0	300	0.100	1250	B
IXFL44N100P	Polar HiPerFET™	1000	37.0	0.2400	22000	305.0	300	0.350	357	L
IXFN44N100P	Polar HiPerFET™	1000	37.0	0.2200	22000	305.0	300	0.140	890	N
1100 Volt										
IXF(1)30N110P	Polar HiPerFET™	1100	30.0	0.3600	16000	235.0	300	0.130	960	K, X
IXFN30N110P	Polar HiPerFET™	1100	25.0	0.3600	16000	235.0	300	0.180	695	N
IXFR30N110P	Polar HiPerFET™	1100	16.0	0.4000	16000	235.0	300	0.390	320	R
IXFN36N110P	Polar HiPerFET™	1100	36.0	0.2400	27000	350.0	300	0.125	1000	N
IXFL36N110P	Polar HiPerFET™	1100	26.0	0.2600	27000	350.0	300	0.240	520	L
IXFB40N110P	Polar HiPerFET™	1100	40.0	0.2600	22000	310.0	300	0.100	1250	B
IXFL40N110P	Polar HiPerFET™	1100	21.0	0.2800	22000	310.0	300	0.350	357	L
IXFN40N110P	Polar HiPerFET™	1100	34.0	0.2600	22000	310.0	300	0.140	890	N
1200 Volt										
IXT(1)06N120P	Polar MOSFET™	1200	0.6	32.0000	270	13.3	900	3.000	42	A, P
IXT(1)08N120P	Polar MOSFET™	1200	0.8	25.0000	370	14.0	900	2.500	50	A, P
IXT(1)1N120P	Polar MOSFET™	1200	1.0	20.0000	550	17.6	900	2.000	63	A, P
IXT(1)1R4N120P	Polar MOSFET™	1200	1.4	13.0000	725	24.8	900	1.450	86	A, P
IXT(1)2R4N120P	Polar MOSFET™	1200	2.4	7.5000	1207	37.0	920	1.000	125	A, H, P
IXF(1)12N120P(2)	Polar HiPerFET™	1200	12.0	1.3500	6500	103.0	300	0.230	543	H, V, V ... S
IXF(1)16N120P	Polar HiPerFET™	1200	16.0	0.9500	8000	120.0	300	0.190	660	H, T
IXFR16N120P	Polar HiPerFET™	1200	9.0	1.0400	8000	120.0	300	0.540	230	R
IXF(1)20N120P	Polar HiPerFET™	1200	20.0	0.5700	12900	193.0	300	0.160	780	K, X
IXFN20N120P	Polar HiPerFET™	1200	20.0	0.5700	12900	193.0	300	0.210	595	N
IXFR20N120P	Polar HiPerFET™	1200	13.0	0.6300	12900	193.0	300	0.430	290	R
IXF(1)26N120P	Polar HiPerFET™	1200	26.0	0.4600	16000	225.0	300	0.130	960	K, X
IXFN26N120P	Polar HiPerFET™	1200	23.0	0.4600	16000	225.0	300	0.180	695	N
IXFR26N120P	Polar HiPerFET™	1200	15.0	0.5000	16000	225.0	300	0.390	320	R
IXFB30N120P	Polar HiPerFET™	1200	30.0	0.3500	22500	310.0	300	0.100	1250	B
IXFL30N120P	Polar HiPerFET™	1200	18.0	0.3800	22500	310.0	300	0.350	357	L
IXFN30N120P	Polar HiPerFET™	120	30.0	0.3500	22500	310.0	300	0.140	890	N
IXFL32N120P	Polar HiPerFET™	1200	24.0	0.3400	27000	360.0	300	0.240	520	L
IXFN32N120P	Polar HiPerFET™	1200	32.0	0.3100	27000	360.0	300	0.125	1000	N

(1) Place holder is part number for package designator;

(2) Add suffix letter 'S' to part number for Surface Mountable Plus220 package, e.g. IXFV110N10PS

