

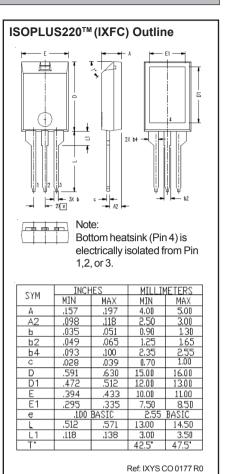
Powe ISOP (Electrica N-Chann	HV <sup>™</sup> HiPerFET IXF er MOSFET LUS220 <sup>™</sup> ally Isolated Back Surface) el Enhancement Mode nsic Diode ne Rated	EC .	12N8	0P		$\begin{array}{llllllllllllllllllllllllllllllllllll$			
Symbol	Test Conditions	Maximum Ratings				ISOPLUS220™ (IXFC) E153432			
V <sub>dss</sub> V <sub>dgr</sub>	$T_J = 25^{\circ} C$ to $150^{\circ} C$ $T_J = 25^{\circ} C$ to $150^{\circ} C$ ; $R_{GS} = 1 M\Omega$		80 80		V V				
V <sub>GS</sub> V <sub>GSM</sub>	Continuous Transient		±3 ±4		V V	GDS			
<sub>D25</sub>   <sub>DM</sub>	$T_c = 25^{\circ}C$ $T_c = 25^{\circ}C$ , pulse width limited by $T_{JM}$		3	7 36	A A	5 Isolated back surface			
I <sub>AR</sub> E <sub>AR</sub> E <sub>AS</sub>	$T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$ $T_{c} = 25^{\circ}C$			6 30 .0	A mJ J	G = Gate D = Drain S = Source			
dv/dt	I <sub>s</sub> ≤I <sub>DM</sub> , di/dt ≤100 A/μs, V <sub>DD</sub> ≤V <sub>DSS</sub> , T <sub>J</sub> ≤150°C, R <sub>g</sub> = 10 Ω			10	V/ns				
P <sub>D</sub> T <sub>J</sub> T <sub>JM</sub> T <sub>stg</sub>	$T_c = 25^{\circ}C$	12 -55 +18 18 -55 +18		50 °C 50 °C		substrate - High power dissipation - Isolated mounting surface - 2500V electrical isolation • Low drain to tab capacitance(<35pF) • Low R <sub>DS (on)</sub> HDMOS <sup>™</sup> process • Rugged polysilicon gate cell structure • Unclamped Inductive Switching (UIS)			
T <sub>L</sub> T <sub>SOLD</sub>	1.6 mm (0.062 in.) from case for 10 s Plastic body for 10 s 50/60 Hz, RMS, t = 1, leads-to-tab	s 300 260 2500			°C °C V~				
V <sub>ISOL</sub>	Mounting Force				N/lb				
WeightSymbol $(T_j = 25^{\circ} C)$			2 g Characteristic Values Min.   Typ.   Max.			<ul> <li>Applications</li> <li>DC-DC converters</li> <li>Battery chargers</li> <li>Switched-mode and resonant-mode power supplies</li> </ul>			
BV <sub>DSS</sub>	$V_{_{\rm GS}}$ = 0 V, I <sub>D</sub> = 250 µA	800			V	<ul><li>DC choppers</li><li>AC motor control</li></ul>			
V <sub>GS(th)</sub>	$V_{_{\rm DS}} = V_{_{\rm GS}}, I_{_{\rm D}} = 2.5 \text{ mA}$	3.0		5.5	V	Advantages			
I <sub>gss</sub>	$V_{_{\rm GS}}$ = ±30 V, $V_{_{\rm DS}}$ = 0 V			±100	nA	<ul> <li>Easy assembly: no screws, or isolation foils required</li> </ul>			
I <sub>DSS</sub>	$V_{DS} = V_{DSS}$ $V_{GS} = 0 V$ $T_{J} = 125^{\circ}C$			25 750	μΑ μΑ	<ul><li>Space savings</li><li>High power density</li></ul>			
R <sub>DS(on)</sub>	$V_{_{\rm GS}}$ = 10 V, $I_{_{\rm D}}$ = $I_{_{\rm T_{.}}}$ (Note 1) Pulse test, t $\leq$ 300 µs, duty cycle d $\leq$ 2 %				βmΩ	<ul> <li>Low collector capacitance to ground (low EMI)</li> </ul>			
			<u>ı                                    </u>						

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## IXFC 12N80P

Symbol		Test Conditions	<b>Characteristic Values</b> (T <sub>J</sub> = 25° C unless otherwise specified)					
			Min.	Тур.	Max.			
<b>g</b> <sub>fs</sub>		$V_{DS}$ = 20 V; $I_{D}$ = $I_{T}$ , pulse test	12	18	S			
C <sub>iss</sub>	)			2800	pF			
C <sub>oss</sub>	}	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, f = 1 MH	Iz	210	pF			
C <sub>rss</sub>	J			19	pF			
t <sub>d(on)</sub>	)			21	ns			
t,		$V_{GS} = 10 \text{ V}, \text{ V}_{DS} = 0.5 \text{ V}_{DSS}, \text{ I}_{D} =$	Ι <sub>τ</sub>	22	ns			
t <sub>d(off)</sub>	(	$R_{g}$ = 10 $\Omega$ (External)		62	ns			
t <sub>f</sub>	J			22	ns			
<b>Q</b> <sub>g(on)</sub>	)			51	nC			
Q <sub>gs</sub>	}	$V_{GS}$ = 10 V, $V_{DS}$ = 0.5 $V_{DSS}$ , $I_{D}$ =	I <sub>T</sub>	13	nC			
Q <sub>gd</sub>	J			19	nC			
R <sub>thJC</sub>					1.05 °C/W			
$\mathbf{R}_{\mathrm{thCS}}$				0.21	° C/W			



Source-Dra		Characteristic Values					
Symbol	(T <sub>j</sub> = 25° C unlessTest ConditionsMin.	s otherw   <b>Typ.</b>	ise speci Max.	fied)			
I <sub>s</sub>	$V_{GS} = 0 V$		12	Α			
I <sub>sm</sub>	Repetitive		36	А			
$V_{\rm SD}$	$I_{_{\rm F}}$ = $I_{_{\rm S}}$ , $V_{_{\rm GS}}$ = 0 V, Pulse test, t ≤300 µs, duty cycle d≤ 2 %		1.5	V			
t <sub>rr</sub> }	I <sub>F</sub> = 12 A, -di/dt = 100 A/μs V <sub>R</sub> = 100 V, V <sub>GS</sub> = 0 V	7	250	ns A			
Q <sub>RM</sub> )		0.7		μC			

Note 1: Test Current  $I_{\tau}$  = 6 A

## **ADVANCE TECHNICAL INFORMATION**

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated objective result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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IXYS MOSFETs and IGBTs are covered by 4,835,	92 4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2
one or moreof the following U.S. patents: 4,850,	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2
4,881,	06 5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 E	2 7,071,537