

# TrenchMV™ Power MOSFET

## IXTF200N10T

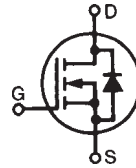
$$V_{DSS} = 100V$$

$$I_{D25} = 120A$$

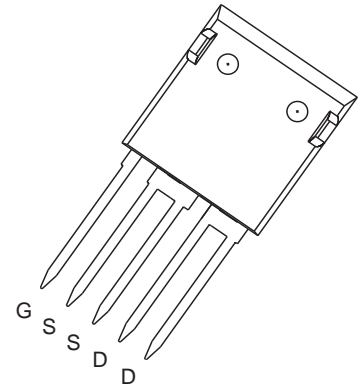
$$R_{DS(on)} \leq 6.3m\Omega$$

(Electrically Isolated Back Surface)

N-Channel Enhancement Mode  
Avalanche Rated



ISOPLUS i4-Pak™ (5-lead)



G = Gate      D = Drain  
S = Source

Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ C$ to $175^\circ C$	100	V
$V_{DGR}$	$T_J = 25^\circ C$ to $175^\circ C$ , $R_{GS} = 1M\Omega$	100	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ C$	120	A
$I_{LRMS}$	Lead Current Limit, RMS	150	A
$I_{DM}$	$T_C = 25^\circ C$ , pulse width limited by $T_{JM}$	500	A
$I_A$	$T_C = 25^\circ C$	40	A
$E_{AS}$	$T_C = 25^\circ C$	1.5	J
$P_D$	$T_C = 25^\circ C$	200	W
$T_J$		-55 ... +175	$^\circ C$
$T_{JM}$		175	$^\circ C$
$T_{stg}$		-55 ... +175	$^\circ C$
$T_L$	1.6mm (0.062in.) from case for 10s Plastic body for 10 seconds	300 260	$^\circ C$ $^\circ C$
$V_{ISOL}$	50/60Hz, $t = 1$ minute, $I_{ISOL} < 1mA$ , RMS	2500	V
$M_d$	Mounting force	120..120 / 4.5..27	N/lb.
<b>Weight</b>		6	g

### Features

- Silicon chip on Direct-Copper Bond (DCB) substrate
- Isolated mounting surface
- Avalanche Rated
- 2500V electrical isolation

### Advantages

- Easy to mount
- Space savings
- High power density

### Applications

- Automotive
  - Motor Drives
  - High Side Switch
  - 12V Battery
  - ABS Systems
- DC/DC Converters and Off-line UPS
- Primary - Side Switch
- High Current Switching Applications

Symbol	Test Conditions ( $T_J = 25^\circ C$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = 250\mu A$	100		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu A$	2.5		4.5 V
$I_{GSS}$	$V_{GS} = \pm 20V$ , $V_{DS} = 0V$			$\pm 200$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0V$ $T_J = 150^\circ C$			5 $\mu A$ 250 $\mu A$
$R_{DS(on)}$	$V_{GS} = 10V$ , $I_D = 50A$ , Notes 1			6.3 m $\Omega$

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 10\text{V}$ , $I_D = 60\text{A}$ , Note 1	60	96	S
$C_{iss}$	$V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$		9400	pF
$C_{oss}$			1087	pF
$C_{rss}$			140	pF
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 50\text{A}$ $R_G = 3.3\Omega$ (External)		35	ns
$t_r$			31	ns
$t_{d(off)}$			45	ns
$t_f$			34	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 50\text{A}$		152	nC
$Q_{gs}$			47	nC
$Q_{gd}$			47	nC
$R_{thJC}$				0.96 $^\circ\text{C/W}$
$R_{thCH}$		0.21		$^\circ\text{C/W}$

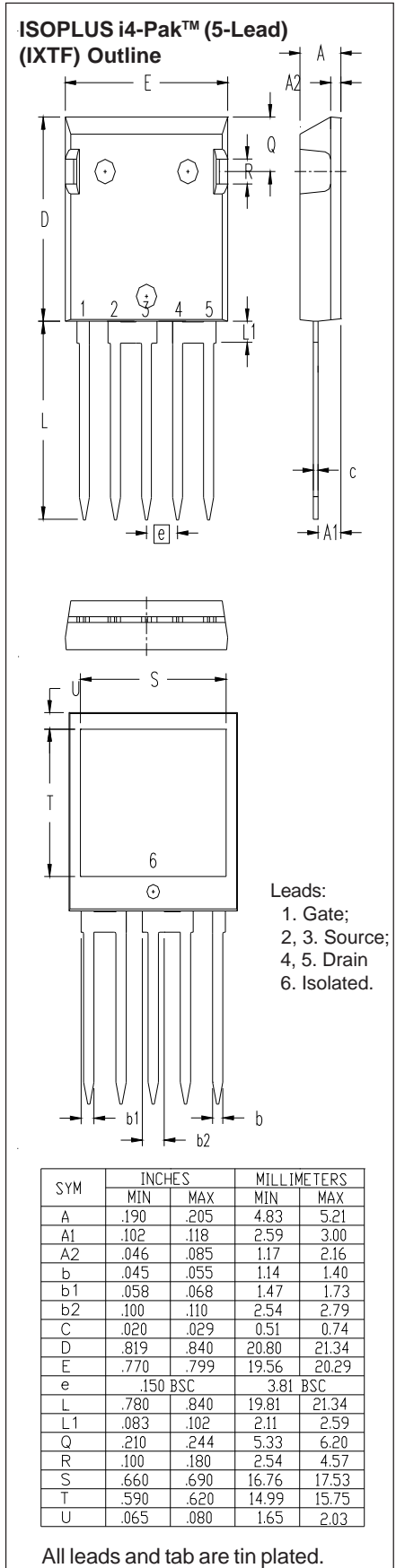
### Source-Drain Diode

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{V}$			200 A
$I_{SM}$	Repetitive, Pulse width limited by $T_{JM}$			500 A
$V_{SD}$	$I_F = 50\text{A}$ , $V_{GS} = 0\text{V}$ , Note 1			1.0 V
$t_{rr}$	$I_F = 100\text{A}$ , $V_{GS} = 0\text{V}$ , $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 50\text{V}$		76	ns
$Q_{RM}$			205	nC
$I_{RM}$			5.4	A

Notes: 1. Pulse test,  $t \leq 300\mu\text{s}$ ; duty cycle,  $d \leq 2\%$ .

### 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 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 one or more of the following U.S. patents:	4,835,592	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	7,157,338B2
	4,850,072	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	
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	