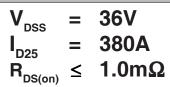


Advance Technical Information

## TrenchT4<sup>™</sup> Power MOSFET

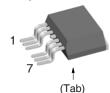
### IXTA380N036T4-7



N-Channel Enhancement Mode Avalanche Rated

Symbol	Test Conditions	Maximum Ratings			
V <sub>pss</sub>	T <sub>」</sub> = 25°C to 175°C	36	V		
V <sub>DGR</sub>	$T_{J} = 25^{\circ}C$ to 175°C, $R_{GS} = 1M\Omega$	36	V		
V <sub>GSM</sub>	Transient	±15	V		
I <sub>D25</sub>	$T_c = 25^{\circ}C$	380	A		
	Lead Current Limit, RMS	160	А		
I <sub>DM</sub>	$\rm T_{c}$ = 25°C, Pulse Width Limited by $\rm T_{_{JM}}$	830	А		
I <sub>A</sub>	$T_c = 25^{\circ}C$	190	A		
E <sub>AS</sub>	$T_{c} = 25^{\circ}C$	1.4	J		
P <sub>D</sub>	$T_c = 25^{\circ}C$	480	W		
Tj		-55 +175	°C		
T <sub>JM</sub>		175	°C		
T <sub>stg</sub>		-55 +175	°C		
T,	Maximum Lead Temperature for Soldering	g 300	°C		
	1.6 mm (0.062in.) from Case for 10s	260	°C		
F <sub>c</sub>	Mounting Force	10.65 / 2.214.6	N/lb		
Weight		3.0	g		

TO-263 (7-lead)



Pins: 1 - Gate 2, 3, 5 , 6 , 7 - Source 4 (Tab) - Drain

### Features

• International Standard Package

- 175°C Operating Temperature
- High Current Handling Capability
- Avalanche Rated
- Low R<sub>DS(on)</sub>

### Advantages

- Easy to Mount
- Space Savings
- High Power Density

#### Applications

- DC-DC Converts & Off-Line UPS
- High Current Switching Applications
- Primary-Side Switch

SymbolTest Conditions(T_J = 25°C Unless Otherwise Specified)			Characteristic Values Min.				
BV <sub>DSS</sub>	$V_{_{GS}} = 0V, I_{_{D}} = 250 \mu A$	36			V		
V <sub>GS(th)</sub>	$V_{\text{DS}} = V_{\text{GS}}, I_{\text{D}} = 250 \mu A$	2.0		4.0	V		
I <sub>gss</sub>	$V_{GS} = \pm 15V, V_{DS} = 0V$			±200	nA		
I <sub>DSS</sub>	$V_{DS} = V_{DSS}, V_{GS} = 0V$			10	μA		
	$T_{J} = 150^{\circ}C$			750	μA		
R <sub>DS(on)</sub>	$V_{_{GS}}$ = 10V, $I_{_{D}}$ = 100A, Note 1			1.0	mΩ		

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## IXTA380N036T4-7

SymbolTest ConditionsCharac $(T_J = 25^{\circ}C, Unless Otherwise Specified)Min.$		acteristic Typ.	Values Max.	
<b>g</b> <sub>fs</sub>	$V_{_{DS}} = 10V, I_{_{D}} = 60A, Note 1$	105	175	S
R <sub>Gi</sub>	Gate Input Resistance		1.0	Ω
C <sub>iss</sub>	)		13.4	nF
C <sub>oss</sub>	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		2400	pF
C <sub>rss</sub>	)		1650	pF
t <sub>d(on)</sub>	Bacistiva Switching Times		36	ns
t <sub>r</sub>	Resistive Switching Times $V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} =$	0.5.•1	78	ns
t <sub>d(off)</sub>	$ \begin{pmatrix} v_{GS} = 10^{\circ}, v_{DS} = 0.3 + v_{DSS}, v_{D} = \\ R_{G} = 5\Omega \text{ (External)} $	0.0 ° 1 <sub>D25</sub>	125	ns
t <sub>f</sub>	) ····g ···· (-·······)		80	ns
Q <sub>g(on)</sub>	)		260	nC
Q <sub>gs</sub>	$V_{\rm GS} = 10V, V_{\rm DS} = 0.5 \cdot V_{\rm DSS}, I_{\rm D} =$	= 0.5 • I <sub>D25</sub>	60	nC
Q <sub>gd</sub>	J		92	nC
R <sub>thJC</sub>				0.31 °C/W

#### Source-Drain Diode

		Chara Min.	acteristio Typ.	c Values Max.	
I <sub>s</sub>	$V_{gs} = 0V$			380	А
I <sub>SM</sub>	Repetitive, Pulse width limited by $\mathrm{T}_{_{\mathrm{JM}}}$			1520	А
V <sub>SD</sub>	$I_{_{\rm F}} = 100$ A, $V_{_{ m GS}} = 0$ V, Note 1			1.4	V
t <sub>rr</sub>	$I_{\rm F} = 150 {\rm A}, V_{\rm GS} = 0 {\rm V}$		54		ns
I <sub>RM</sub>	-di/dt = 100A/µs		2.6		Α
<b>о</b> <sub>вм</sub> )	$V_{R} = 30V$		70		nC

Note 1: Pulse test,  $t \le 300 \mu s$ , duty cycle,  $d \le 2\%$ .

#### **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.

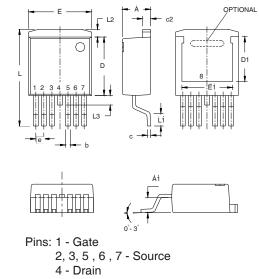
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IXYS MOSFETs and IGBTs are covered	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338B2
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	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B	2 7,071,537	

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## IXTA380N036T4-7

TO-263 (7-lead) (IXTA..7) Outline



SYM	INC	HES	MILLIMETER		
SIM	MIN	MAX	MIN	MAX	
Α	.170	.185	4.30	4.70	
A 1	.085	.104	2.15	2,65	
b	.026	.035	0.65	0.90	
С	.016	.024	0.40	0.60	
с2	.049	.055	1.25	1.40	
D	.355	.370	9.00	9.40	
D 1	.272	.280	6.90	7.10	
Ε	.386	.402	9.80	10.20	
Ε1	.311	.319	7.90	8.10	
е	.050 BSC		1.27BSC		
L	.591	.614	15.00	15.60	
L1	.091	.110	2.30	2,80	
L2	.039	.059	1.00	1.50	
L3	.000	.059	0.00	1.50	



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