

TrenchT4™

Power MOSFET

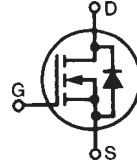
IXTA380N036T4-7

$$V_{DSS} = 36V$$

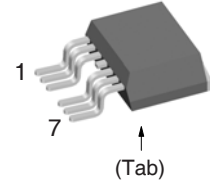
$$I_{D25} = 380A$$

$$R_{DS(on)} \leq 1.0m\Omega$$

N-Channel Enhancement Mode
Avalanche Rated



TO-263 (7-lead)



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

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^{\circ}C$ to $175^{\circ}C$	36	V
V_{DGR}	$T_J = 25^{\circ}C$ to $175^{\circ}C$, $R_{GS} = 1M\Omega$	36	V
V_{GSM}	Transient	± 15	V
I_{D25}	$T_C = 25^{\circ}C$	380	A
I_{LRMS}	Lead Current Limit, RMS	160	A
I_{DM}	$T_C = 25^{\circ}C$, Pulse Width Limited by T_{JM}	830	A
I_A	$T_C = 25^{\circ}C$	190	A
E_{AS}	$T_C = 25^{\circ}C$	1.4	J
P_D	$T_C = 25^{\circ}C$	480	W
T_J		-55 ... +175	$^{\circ}C$
T_{JM}		175	$^{\circ}C$
T_{stg}		-55 ... +175	$^{\circ}C$
T_L	Maximum Lead Temperature for Soldering	300	$^{\circ}C$
T_{SOLD}	1.6 mm (0.062in.) from Case for 10s	260	$^{\circ}C$
F_C	Mounting Force	10.65 / 2.2..14.6	N/lb
Weight		3.0	g

Features

- International Standard Package
- $175^{\circ}C$ Operating Temperature
- High Current Handling Capability
- Avalanche Rated
- Low $R_{DS(on)}$

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

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

Symbol	Test Conditions ($T_J = 25^{\circ}C$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V$, $I_D = 250\mu A$	36		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.0		4.0 V
I_{GSS}	$V_{GS} = \pm 15V$, $V_{DS} = 0V$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0V$			10 μA 750 μA
	$T_J = 150^{\circ}C$			
$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 100A$, Note 1			1.0 m Ω

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	105	175	S
R_{Gi}	Gate Input Resistance		1.0	Ω
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		13.4	nF
C_{oss}			2400	pF
C_{rss}			1650	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 5\Omega$ (External)		36	ns
t_r			78	ns
$t_{d(off)}$			125	ns
t_f			80	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$		260	nC
Q_{gs}			60	nC
Q_{gd}			92	nC
R_{thJC}				0.31 $^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$			380 A
I_{SM}	Repetitive, Pulse width limited by T_{JM}			1520 A
V_{SD}	$I_F = 100\text{A}$, $V_{GS} = 0\text{V}$, Note 1			1.4 V
t_{rr}	$I_F = 150\text{A}$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 30\text{V}$		54	ns
I_{RM}			2.6	A
Q_{RM}			70	nC

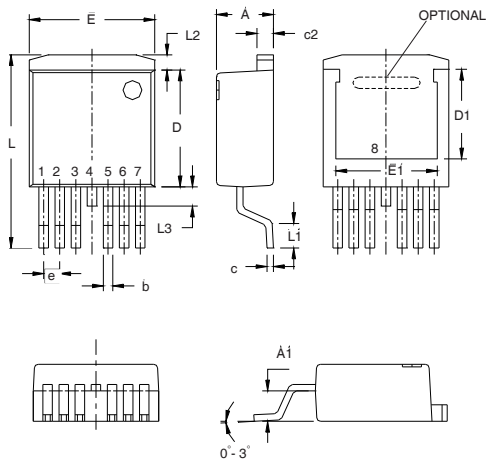
Note 1: Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.

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 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
by one or more of the following U.S. patents: 4,860,072 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

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


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

SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.085	.104	2.15	2.65
b	.026	.035	0.65	0.90
c	.016	.024	0.40	0.60
c2	.049	.055	1.25	1.40
D	.355	.370	9.00	9.40
D1	.272	.280	6.90	7.10
E	.386	.402	9.80	10.20
E1	.311	.319	7.90	8.10
e	.050 BSC		1.27 BSC	
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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