IXYS

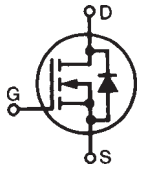
Advance Technical Information

TrenchT4™ Power MOSFET

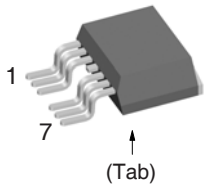
IXTA380N036T4-7

V_{DSS} = 36V
I_{D25} = 380A
$R_{DS(on)}$ ≤ 1.0mΩ

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

Features

- International Standard Package
- 175°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°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 250μA	36			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0		4.0	V
I_{GSS}	V_{GS} = ±15V, V_{DS} = 0V			±200	nA
I_{DSS}	V_{DS} = V_{DSS}, V_{GS} = 0V			10	μA
	T_J = 150°C			750	μA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 100A, Note 1			1.0	mΩ

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 10V, I_D = 60A, Note 1	105	175		S
R_{Gi}	Gate Input Resistance		1.0		Ω
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		13.4		nF
C_{oss}			2400		pF
C_{rss}			1650		pF
$t_{d(on)}$	**Resistive Switching Times**		36		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		78		ns
$t_{d(off)}$	R_G = 5Ω (External)		125		ns
t_f			80		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		260		nC
Q_{gs}			60		nC
Q_{gd}			92		nC
R_{thJC}				0.31	°C/W

Source-Drain Diode

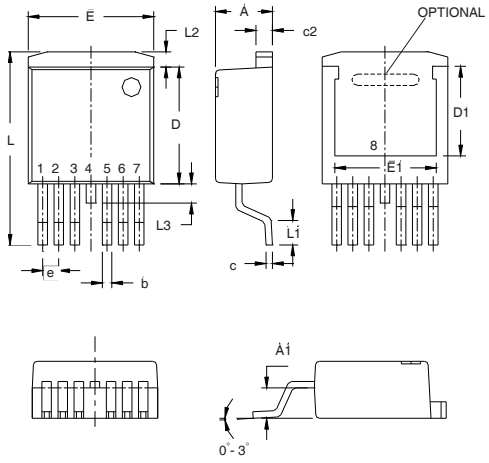
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			380	A
I_{SM}	Repetitive, Pulse width limited by T_{JM}			1520	A
V_{SD}	I_F = 100A, V_{GS} = 0V, Note 1			1.4	V
t_{rr}	I_F = 150A, V_{GS} = 0V		54		ns
I_{RM}	-di/dt = 100A/μs		2.6		A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

Note 1: Pulse test, t ≤ 300μs, duty cycle, d ≤ 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.

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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