IXYS

Advance Technical Information

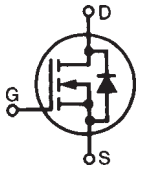
TrenchMV™ Power MOSFET

IXTF200N10T

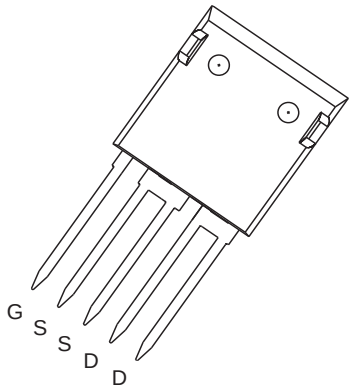
V_{DSS} = 100V
I_{D25} = 120A
$R_{DS(on)}$ ≤ 6.3mΩ

(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°C to 175°C	100	V
V_{DGR}	T_J = 25°C to 175°C, R_{GS} = 1MΩ	100	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	120	A
I_{LRMS}	Lead Current Limit, RMS	150	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	500	A
I_A	T_C = 25°C	40	A
E_{AS}	T_C = 25°C	1.5	J
P_D	T_C = 25°C	200	W
T_J		-55 ... +175	°C
T_{JM}		175	°C
T_{stg}		-55 ... +175	°C
T_L	1.6mm (0.062in.) from case for 10s Plastic body for 10 seconds	300 260	°C °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.
Weight		6	g

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

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

Source-Drain Diode

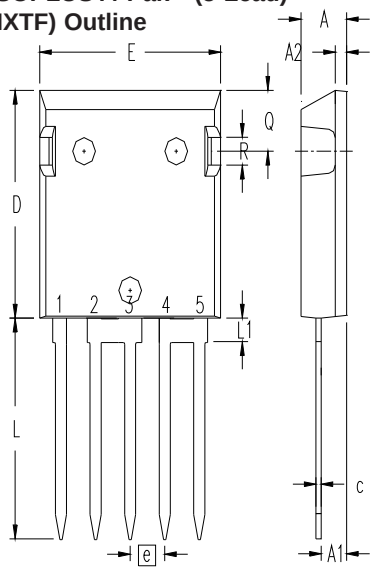
Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			200	A
I_{SM}	Repetitive, Pulse width limited by T_{JM}			500	A
V_{SD}	I_F = 50A, V_{GS} = 0V, Note 1			1.0	V
t_{rr}	I_F = 100A, V_{GS} = 0V,-di/dt = 100A/μs		76		ns
Q_{RM}	V_R = 50V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

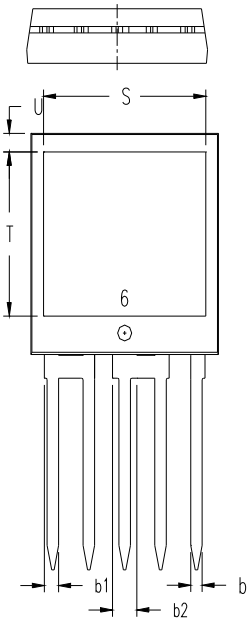
Notes: 1. Pulse test, t ≤ 300μs; duty cycle, d ≤ 2%.

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.

ISOPLUS i4-Pak™ (5-Lead) (IXTF) Outline





Leads:
1. Gate;
2, 3. Source;
4, 5. Drain
6. Isolated.

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.085	1.17	2.16
b	.045	.055	1.14	1.40
b1	.058	.068	1.47	1.73
b2	.100	.110	2.54	2.79
C	.020	.029	0.51	0.74
D	.819	.840	20.80	21.34
E	.770	.799	19.56	20.29
e	.150 BSC		3.81 BSC	
L	.780	.840	19.81	21.34
L1	.083	.102	2.11	2.59
Q	.210	.244	5.33	6.20
R	.100	.180	2.54	4.57
S	.660	.690	16.76	17.53
T	.590	.620	14.99	15.75
U	.065	.080	1.65	2.03

All leads and tab are tin plated.