Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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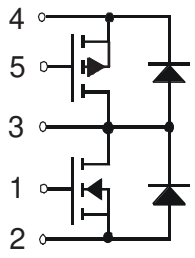
IXYS

Advance Technical Information

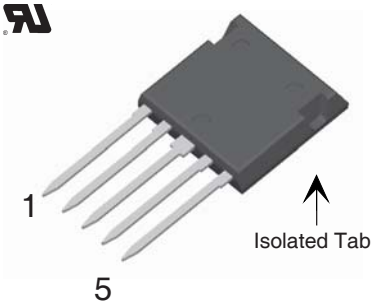
Trench™ P & N-Channel Power MOSFET Common Drain Topology

FMP76-01T



	P CH.	N CH.
V_{DSS}	- 100V	100V
I_{D25}	- 54A	62A
$R_{DS(on)}$	24mΩ	11mΩ
$t_{rr(typ)}$	70ns	67ns

ISOPLUS i4-Pak™



Symbol	Test Conditions	Maximum Ratings	
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
V_{ISOLD}	50/60H_Z, RMS, t = 1min, leads-to-tab	2500	~V
T_L	1.6mm (0.062 in.) from case for 10s	300	°C
T_{SOLD}	Plastic body for 10s	260	°C
F_C	Mounting force	20..120 / 4.5..27	N/lb.

Symbol	Test Conditions	Characteristic Values Min.	Typ.	Max.	
C_P	Coupling capacitance between shorted pins and mounting tab in the case		40		pF
d_S ,d_A	pin - pin	1.7			mm
d_S ,d_A	pin - backside metal	5.5			mm
Weight			9		g

P - CHANNEL

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	- 100	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	- 100	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	T_C = 25°C	- 54	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	- 230	A
I_A	T_C = 25°C	- 38	A
E_{AS}	T_C = 25°C	1.0	J
P_D	T_C = 25°C	132	W

Features

- Silicon chip on Direct-Copper Bond (DCB) substrate
  - UL recognized package
  - Isolated mounting surface
  - 2500V electrical isolation
- Avalanche rated
- Low Q_G
- Low Drain-to-Tab capacitance
- Low package inductance

Advantages

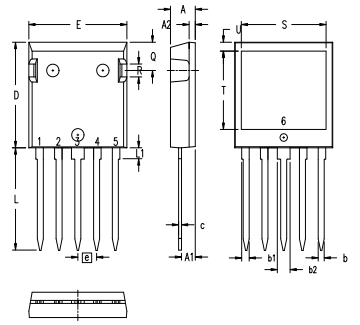
- Low gate drive requirement
- High power density
- Low drain to ground capacitance
- Fast switching

Applications

- DC and AC motor drives
- Class AB audio amplifiers
- Multi-phase DC to DC converters
- Industrial battery chargers
- Switching power supplies

Symbol	Test Conditions[2] (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = - 250 μA	- 100			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = - 250μA	- 2.0		- 4.0	V
I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0V			± 100	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			-15	μA
	T_J = 125°C			- 750	μA
$R_{DS(on)}$	V_{GS} = -10V, I_D = - 38A, Note 1			24	mΩ
g_{fs}	V_{DS} = -10V, I_D = - 38A, Note 1	35	58		S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		13.7		nF
C_{oss}			890		pF
C_{rss}			275		pF
$t_{d(on)}$	**Resistive Switching Times**		25		ns
t_r	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = - 38A		40		ns
$t_{d(off)}$	R_G = 1Ω (External)		52		ns
t_f			20		ns
$Q_{g(on)}$	V_{GS}= -10V, V_{DS} = 0.5 • V_{DSS}, I_D = - 38A		197		nC
Q_{gs}			65		nC
Q_{gd}			65		nC
R_{thJC}				0.95	°C/W
R_{thCS}			0.15		°C/W

ISOPLUS i4-Pak™ Outline



NOTE: Bottom heatsink meets 3000 Volts AC 1 sec isolation to the other pins.

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

Ref: IXYS CO 0077 R0

Drain-Source Diode

Symbol	Test Conditions[2] (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			- 54	A
I_{SM}	Repetitive, pulse width limited by T_{JM}			- 304	A
V_{SD}	I_F = - 38A, V_{GS} = 0V, Note 1			- 1.3	V
t_{rr}	I_F = - 38A, di/dt = 100A/μs		70		ns
Q_{RM}	V_R = - 50V, V_{GS} = 0V		215		nC
I_{RM}			- 6		A

IXYS reserves the right to change limits, test conditions, and dimensions.

N - CHANNEL

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	100	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	100	V
V_{GSM}	Transient	± 20	V
I_{D25}	T_C = 25°C	62	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	300	A
I_A	T_C = 25°C	65	A
E_{AS}	T_C = 25°C	500	mJ
P_D	T_C = 25°C	89	W

Symbol	Test Conditions[2] (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 250 μA	100			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.5		4.5	V
I_{GSS}	V_{GS} = ±20 V, V_{DS} = 0V			± 200	nA
I_{DSS}	V_{DS} = V_{DSS}, V_{GS} = 0V			5	μA
	V_{GS} = 0V, T_J = 150°C			250	μA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 25A, (Note 1)			11	mΩ
g_{fs}	V_{DS} = 10V, I_D = 60A, (Note 1)	55	93		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25 V, f = 1 MHz		5080		pF
C_{oss}			635		pF
C_{rss}			95		pF
$t_{d(on)}$	**Resistive Switching Times**		30		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 25A		47		ns
$t_{d(off)}$	R_G = 5Ω (External)		44		ns
t_f			28		ns
$Q_{g(on)}$	V_{GS}= 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 25A		104		nC
Q_{gs}			30		nC
Q_{gd}			29		nC
R_{thJC}				1.4	°C/W
R_{thCS}			0.15		°C/W

Source-Drain Diode **Characteristic Values**

(T_J = 25°C unless otherwise specified)

Symbol	Test Conditions[3]	Min.	Typ.	Max.	
I_S	V_{GS} = 0V			62	A
I_{SM}	Repetitive, pulse width limited by T_{JM}			350	A
V_{SD}	I_F = 25A, V_{GS} = 0V, Note 1			1.0	V
t_{rr}	I_F = 25A, -di/dt = 100A/µs V_R = 50V, V_{GS} = 0V		67		ns
Q_{RM}			160		nC
I_{RM}			4.7		A

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 objective result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.