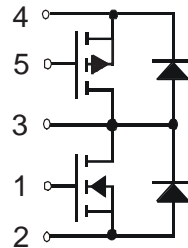


Polar™ P & N-Channel Power MOSFET Common Drain Topology

FMP26-02P

(Electrically Isolated Tab)



	P CH.	N CH.
V_{DSS}	- 200V	200V
I_{D25}	- 17A	26A
$R_{DS(on)}$	170mΩ	60mΩ
$t_{rr(typ)}$	240ns	150ns

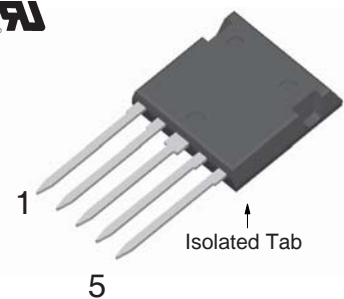
Symbol	Test Conditions	Maximum Ratings	
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
V_{ISOLD}	50/60Hz, RMS, t = 1min, Leads-to-Tab	2500	~V
T_L	1.6mm (0.062 in.) from Case for 10s	300	°C
T_{SOLD}	Plastic Body for 10s	260	°C
F_C	Mounting Force	20..120 / 4.5..27	N/lb.

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}	$T_J = 25^\circ\text{C}$ to 150°C	- 200	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1\text{M}\Omega$	- 200	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	-17	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	- 70	A
I_A	$T_C = 25^\circ\text{C}$	- 26	A
E_{AS}	$T_C = 25^\circ\text{C}$	1.5	J
P_D	$T_C = 25^\circ\text{C}$	125	W

ISOPLUS i4-Pak™



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

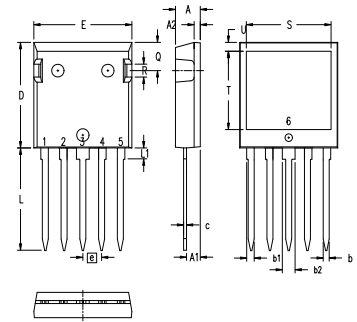
Advantages

- 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 ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values				
		Min.	Typ.	Max.		
BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu\text{A}$	-200		V		
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-2.5		V		
I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100 nA		
I_{DSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$ $T_J = 125^\circ\text{C}$			-10 μA -150 μA		
$R_{DS(on)}$	$V_{GS} = -10V, I_D = -13A$, Note 1			170 m Ω		
g_{fs}	$V_{DS} = -10V, I_D = -13A$, Note 1	10	17	S		
C_{iss}	$V_{GS} = 0V, V_{DS} = -25V, f = 1\text{MHz}$		2740	pF		
C_{oss}						
C_{rss}					100	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = -10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = -13A$ $R_G = 3.3\Omega$ (External)		18	ns		
t_r					33	ns
$t_{d(off)}$					46	ns
t_f					21	ns
$Q_{g(on)}$	$V_{GS} = -10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = -13A$		56	nC		
Q_{gs}					18	nC
Q_{gd}					20	nC
R_{thJC}				1.0 $^\circ\text{C/W}$		
R_{thCS}		0.15		$^\circ\text{C/W}$		

ISOPLUS i4-Pak™ Outline


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

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values				
		Min.	Typ.	Max.		
I_s	$V_{GS} = 0V$			-17 A		
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			-104 A		
V_{SD}	$I_F = -13A, V_{GS} = 0V$, Note 1			-3.2 V		
t_{rr}	$I_F = -13A, di/dt = 100A/\mu\text{s}$ $V_R = -100V, V_{GS} = 0V$		240	ns		
Q_{RM}					2.2	μC
I_{RM}					-18	A

IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	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
	4,850,072	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	

N - CHANNEL

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	200	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1\text{M}\Omega$	200	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	26	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	120	A
I_A	$T_C = 25^\circ\text{C}$	50	A
E_{AS}	$T_C = 25^\circ\text{C}$	1	J
P_D	$T_C = 25^\circ\text{C}$	125	W

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$	200		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$	2.5		5.0 V
I_{GSS}	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$			± 100 nA
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0\text{V}$ $T_J = 150^\circ\text{C}$			25 μA 250 μA
$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 25\text{A}$, (Note 1)			60 m Ω
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 25\text{A}$, (Note 1)	12	23	S
C_{iss}	} $V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		2720	pF
C_{oss}			490	pF
C_{rss}			105	pF
$t_{d(on)}$	} Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 25\text{A}$ $R_G = 10\Omega$ (External)		26	ns
t_r			35	ns
$t_{d(off)}$			70	ns
t_f			30	ns
$Q_{g(on)}$	} $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 25\text{A}$		70	nC
Q_{gs}			17	nC
Q_{gd}			37	nC
R_{thJC}				1.0 $^\circ\text{C/W}$
R_{thCS}		0.15		$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0V$			26 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			120 A
V_{SD}	$I_F = 50A, V_{GS} = 0V$, Note 1			1.5 V
t_{rr}	} $I_F = 25A, -di/dt = 100A/\mu s$ $V_R = 100V, V_{GS} = 0V$		150	ns
Q_{RM}			2.0	μC

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

PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.