

# HiPerFET™ Power MOSFETs IXFR 26N60Q ISOPLUS247™ Q-CLASS

(Electrically Isolated Back Surface)

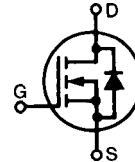
N-Channel Enhancement Mode  
Avalanche Rated, High dV/dt  
Low Gate Charge and Capacitances

$$V_{DSS} = 600 \text{ V}$$

$$I_{D25} = 23 \text{ A}$$

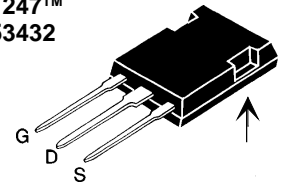
$$R_{DS(on)} = 250 \text{ m}\Omega$$

$$t_{rr} \leq 250 \text{ ns}$$



Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	600	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1 \text{ M}\Omega$	600	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	23	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , Note 1	92	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	26	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	45	mJ
$E_{AS}$	$T_C = 25^\circ\text{C}$	1.5	J
<b>dv/dt</b>	$I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}$ , $R_G = 2 \Omega$	5	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	310	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
$T_L$	1.6 mm (0.063 in.) from case for 10 s	250	$^\circ\text{C}$
$V_{ISOL}$	50/60 Hz, RMS $t = 1 \text{ min}$	2500	V~
<b>Weight</b>		5	g

ISOPLUS 247™  
E153432



G = Gate      D = Drain  
S = Source

\* Patent pending

### Features

- Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
- IXYS advanced low  $Q_g$  process
- Low gate charge and capacitances
  - easier to drive
  - faster switching
- Low drain to tab capacitance (<30pF)
- Low  $R_{DS(on)}$  HDMOS™ process
- Rugged polysilicon gate cell structure
- Rated for Unclamped Inductive Load

Switching (UIS)

- Fast intrinsic Rectifier

### Applications

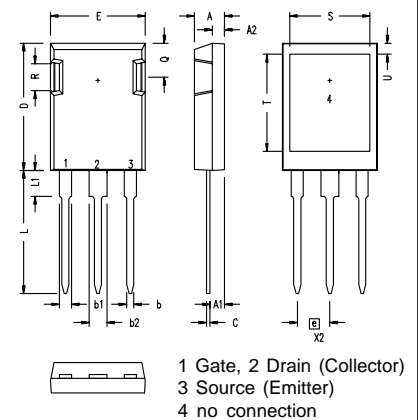
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC & DC motor control

### Advantages

- Easy assembly
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 250 \mu\text{A}$	600		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4 \text{ mA}$	2.5		4.5 V
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}$ , $V_{DS} = 0$			$\pm 100 \text{ nA}$
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$		$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	25 $\mu\text{A}$ 1 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = I_T$ Notes 2, 3			250 m $\Omega$

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = I_T$ Notes 2, 3	14	22	S	
$C_{iss}$	} $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		5100	pF	
$C_{oss}$			560	pF	
$C_{rss}$			210	pF	
$t_{d(on)}$	} $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ $R_G = 2.0\ \Omega$ (External), Notes 2, 3		30	ns	
$t_r$			32	ns	
$t_{d(off)}$			80	ns	
$t_f$			15	ns	
$Q_{g(on)}$	} $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ Notes 2, 3		150	200	nC
$Q_{gs}$			34	nC	
$Q_{gd}$			80	nC	
$R_{thJC}$			0.4	K/W	
$R_{thCK}$		0.15		K/W	

**ISOPLUS 247 (IXFR) OUTLINE**


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A <sub>1</sub>	2.29	2.54	.090	.100
A <sub>2</sub>	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b <sub>1</sub>	1.91	2.13	.075	.084
b <sub>2</sub>	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190
S	13.21	13.72	.520	.540
T	15.75	16.26	.620	.640
U	1.65	3.03	.065	.080

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$I_s$	$V_{GS} = 0\text{ V}$			26 A
$I_{SM}$	Repetitive; Note 1			104 A
$V_{SD}$	$I_F = I_T, V_{GS} = 0\text{ V}$ , Notes 2, 3			1.5 V
$t_{rr}$	} $I_F = 50\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$			250 ns
$Q_{RM}$			1.0	$\mu\text{C}$
$I_{RM}$			10	A

- Note: 1. Pulse width limited by  $T_{JM}$   
 2. Pulse test,  $t \leq 300\ \mu\text{s}$ , duty cycle  $d \leq 2\%$   
 3.  $I_T = 13\text{ A}$



LittleDiode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

[LittleDiode.com](http://LittleDiode.com)

Looking forward to providing you with the best possible service.