

## PDFN3030 Plastic-Encapsulate MOSFETS

### Features

- $V_{DS}=30V$
- $I_D=18A$
- $R_{DS(on)}@V_{GS}=10V < 11m\Omega$
- $R_{DS(on)}@V_{GS}=4.5V < 16m\Omega$
- Low Gate Charge and  $R_{dson}$
- Advanced Split Gate Trench Technology
- Fast Switching Speedze

**Drain-source Voltage**

30 V

**Drain Current**

18 Ampere

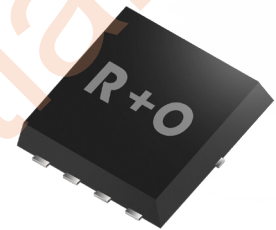
### Applications

- Isolated DC/DC Converters in Telecom and Industrial
- Power switching application

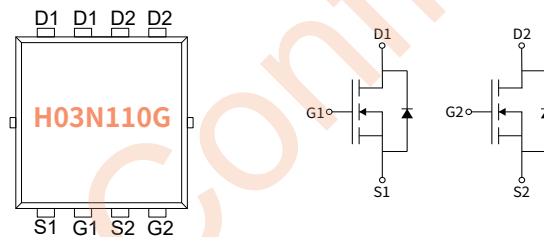
### Mechanical Data

- Case: PDFN3030  
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

PDFN3030



### Function Diagram



### Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
PDFN3030	R3	0.0218	5000	10000	80000	13"

### Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	$V_{DS}$	V	30
Gate-source Voltage	$V_{GS}$	V	$\pm 20$
Drain Current	$I_D$	A	18
Pulsed Drain Current <sup>(1)</sup>	$I_{DM}$	A	72
Total Power Dissipation	$P_D$	W	18
Single pulse avalanche energy <sup>(2)</sup>	EAS	mJ	19
Junction temperature	$T_J$	°C	-55 ~+150
Storage temperature	$T_{stg}$	°C	-55 ~+150
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	°C / W	6.94

## ● Static Parameter Characteristics (T<sub>j</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	V	30	—	—
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	μA	—	—	1.0
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V	nA	—	—	±100
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	V	1.0	1.7	2.5
Static Drain-Source On-Resistance <sup>(3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =15A	mΩ	—	8.5	11
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =10A		—	12	16

## ● Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHZ	pF	—	658	—
Output Capacitance	C <sub>oss</sub>			—	284	—
Reverse Transfer Capacitance	C <sub>rss</sub>			—	36	—

## ● Switching Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =15V, I <sub>D</sub> =10A, R <sub>GEN</sub> =4.7Ω	nS	—	7	—
Turn-on Rise Time	t <sub>r</sub>		nS	—	18.8	—
Turn-off Delay Time	t <sub>D(off)</sub>		nS	—	19.5	—
Turn-off fall Time	t <sub>f</sub>		nS	—	3.4	—
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =10A V <sub>GS</sub> =10V	nC	—	15	—
Gate-Source Charge	Q <sub>gs</sub>		nC	—	2.3	—
Gate-Drain Charge	Q <sub>gd</sub>		nC	—	3.1	—

## ● Drian-Source Diode Characteristics

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =18A, V <sub>GS</sub> =0V	V	—	—	1.2
Maximum Body-Diode Continuous Current	I <sub>S</sub>	—	A	—	—	18
Reverse recover time	T <sub>rr</sub>	I <sub>S</sub> =18A, di/dt=100A/us, T <sub>j</sub> =25°C	nS	—	12	—
Reverse recovery charge	Q <sub>rr</sub>		nC	—	19	—

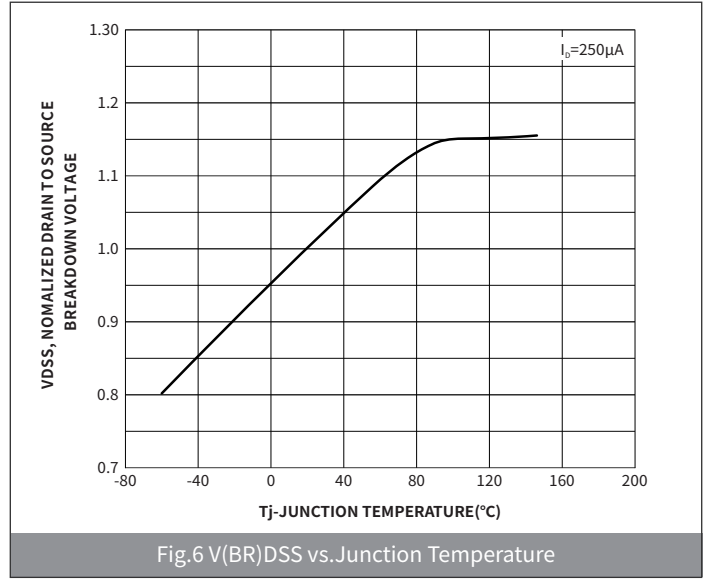
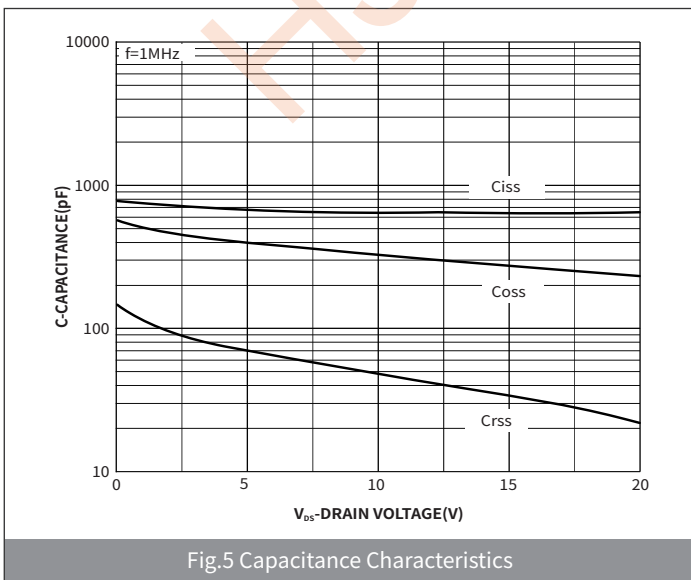
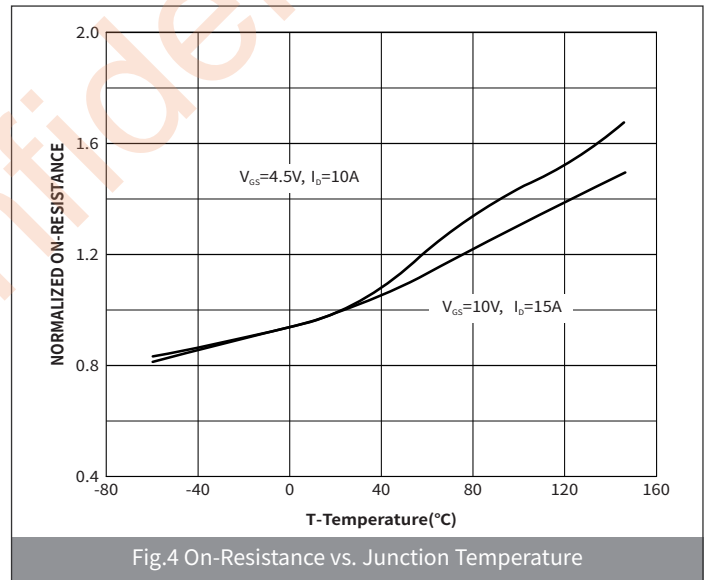
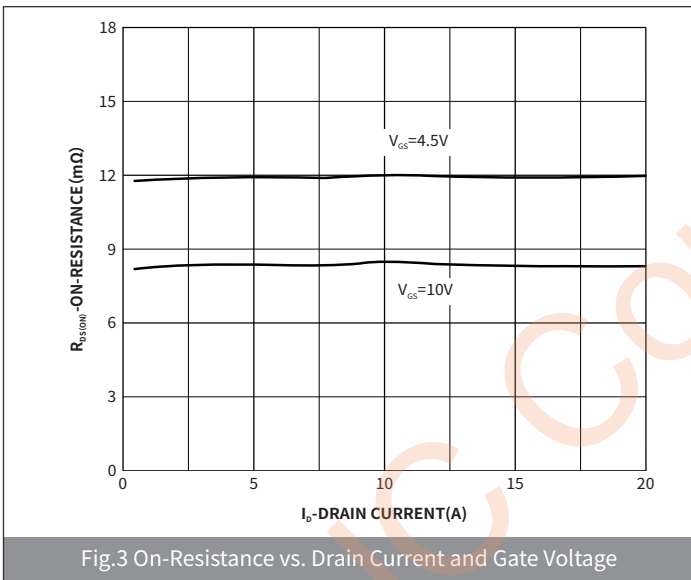
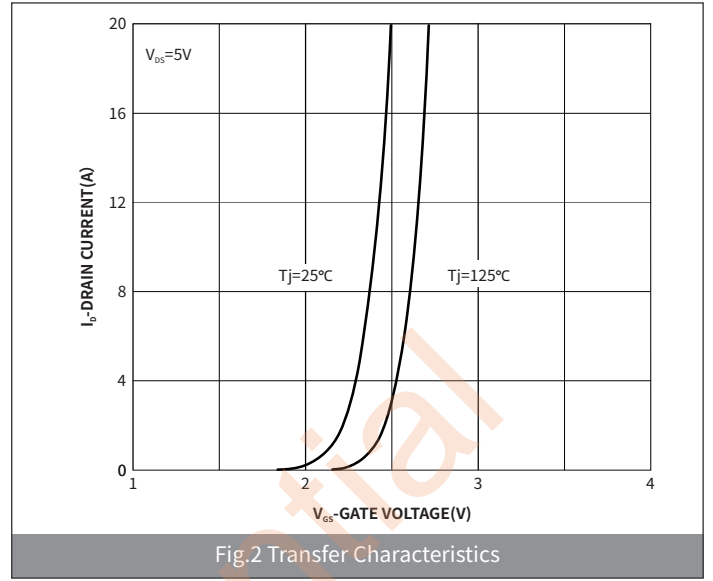
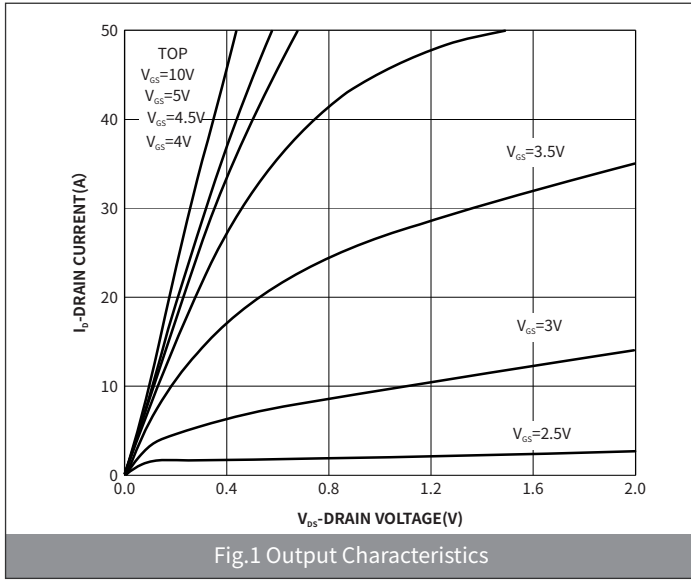
Note :

(1) Repetitive Rating: Pulse width limited by maximum junction temperature.

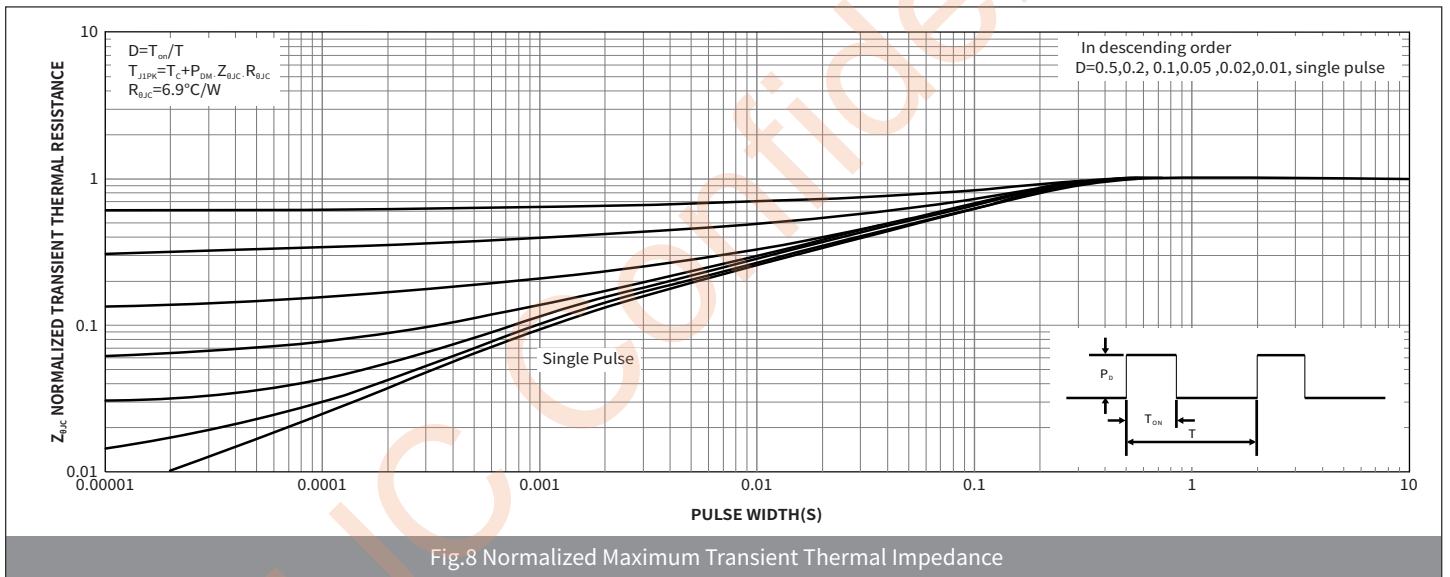
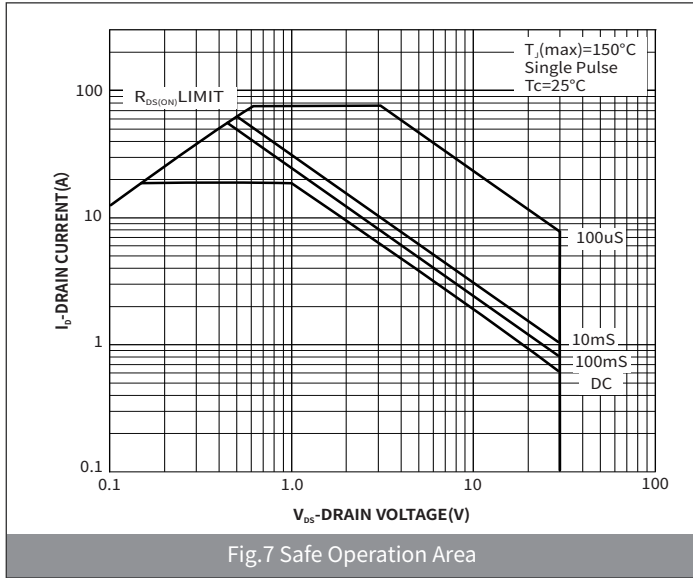
(2) EAS condition : T<sub>j</sub>=25°C, V<sub>DD</sub>=15V, V<sub>G</sub>=10V, L=0.1mH, I<sub>AS</sub>=19.5A, R<sub>g</sub>=25Ω.

(3) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



# HD303N110DG

DUAL N-CHANNEL MOSFET

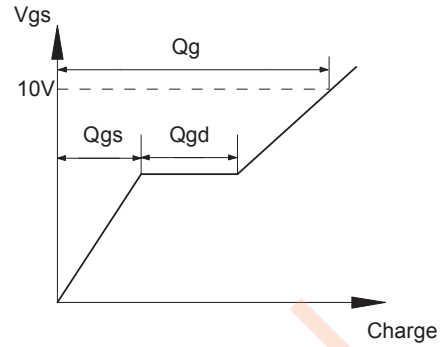
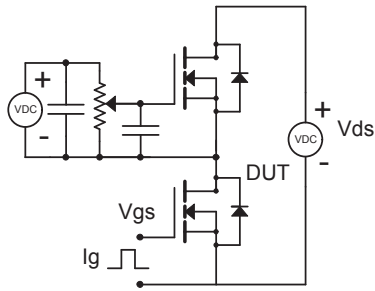
## ● Package Outline Dimensions (PDFN3030)

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.65	0.85	0.026	0.033
A1	0.152REF.		0.006 REF.	
A2	0	0.05	0	0.002
D	2.90	3.10	0.114	0.122
D1	0.935	1.135	0.037	0.045
D2	0.28	0.48	0.011	0.019
E	2.90	3.10	0.114	0.122
E1	3.15	3.45	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.20	0.40	0.008	0.016
e	0.55	0.75	0.022	0.030
L	0.30	0.50	0.012	0.020
L1	0.18	0.48	0.007	0.019
L2	0	0.10	0	0.004
L3	0	0.10	0	0.004
H	0.315	0.515	0.012	0.020
$\theta$	9°	13°	9°	13°

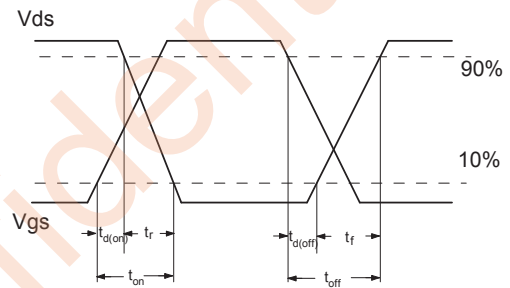
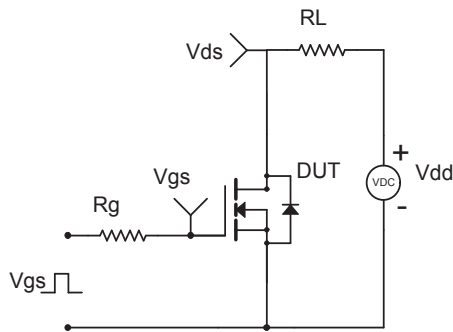
## ● Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.40	2.60	0.094	0.102
B	0.13	0.23	0.005	0.009
C	2.25	2.45	0.089	0.096
D	3.40	3.70	0.134	0.146
E	1.35	1.65	0.053	0.065
F	0.20	0.40	0.008	0.016
G	0.40	0.70	0.016	0.028
H	0.20	0.42	0.008	0.017
L	0.35	0.65	0.014	0.026

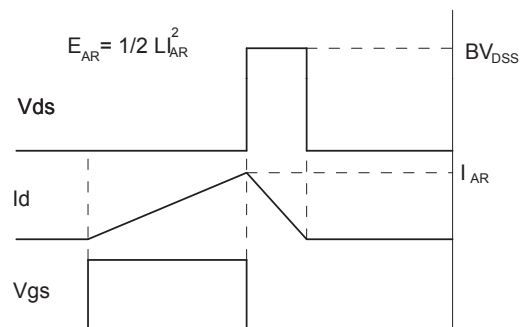
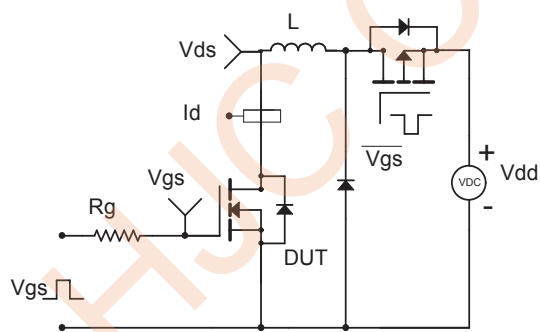
### 1. Gate Charge Test Circuit & Waveforms



### 2. Resistive Switching Test Circuit & Waveforms



### 3. Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



### 4. Diode Recovery Test Circuit & Waveforms

