

TN30DN60DN

Dual N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = 60V, I_D = 30A$
- $R_{DS(on)} < 28m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 37m\Omega @ V_{GS} = 4.5V$

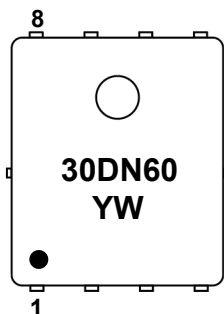
Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

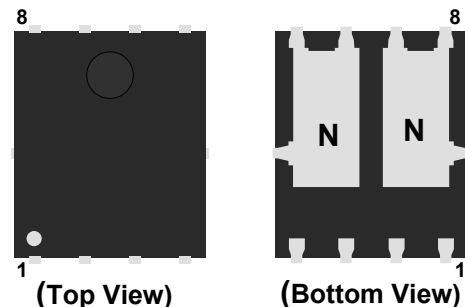
Application

- Synchronous Rectifiers
- H-bridge Motor Drive

Marking Code

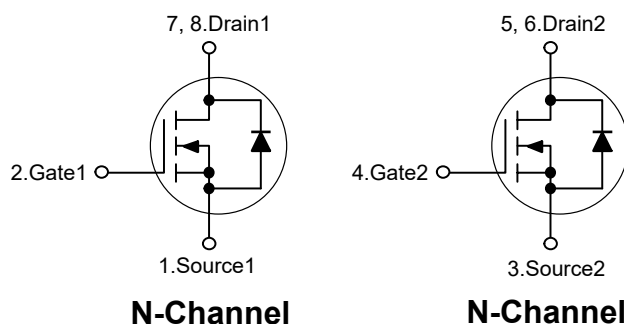


PDFN5x6A-8L



Pin	Description	Pin	Description
1	Source1	4	Gate2
2	Gate1	5,6	Drain2
3	Source2	7,8	Drain1

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	30	A
Drain Current-Pulsed ^{Note1}	I_{DM}	80	A
Maximum Power Dissipation	P_D	28	W
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	18	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.4	°C/W
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Electrical Characteristics(T_J=25°C unless otherwise specified)

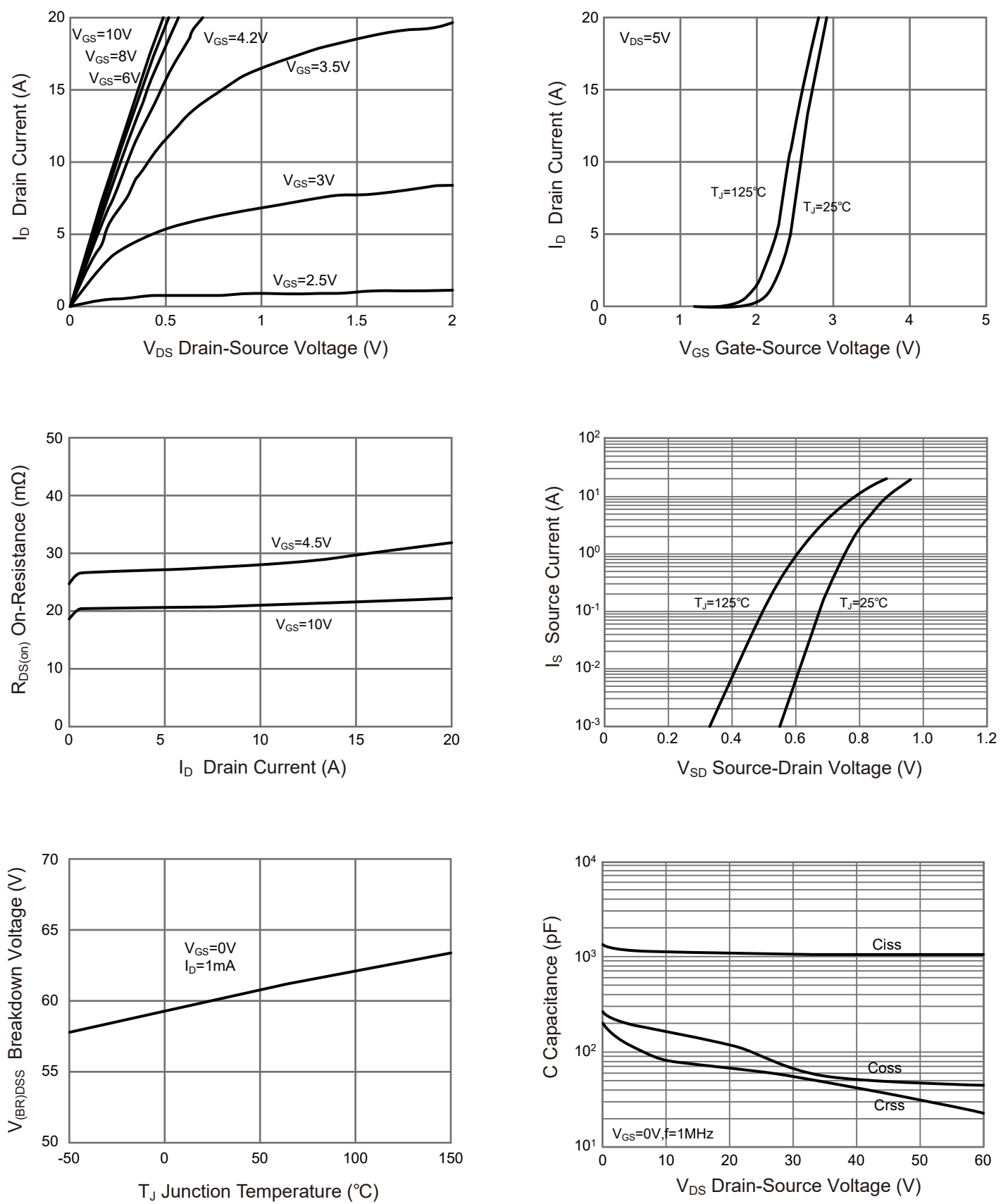
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V,I _D =250μA	60	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V,V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	1	1.7	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V,I _D =10A	--	21	28	mΩ
		V _{GS} =4.5V,I _D =10A	--	28	37	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =5V,I _D =3A	--	7	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V,V _{GS} =0V,f=1MHz	--	1045	--	pF
Output Capacitance	C _{oss}		--	67	--	pF
Reverse Transfer Capacitance	C _{rss}		--	57	--	pF
Gate Resistance	R _G	V _{DS} =0V,V _{GS} =0V,f=1MHz	--	0.9	--	Ω
Total Gate Charge	Q _g	V _{DS} =30V,I _D =5A, V _{GS} =10V	--	5.8	--	nC
Gate-Source Charge	Q _{gs}		--	1.4	--	nC
Gate-Drain Charge	Q _{gd}		--	1.2	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, R _L =6Ω, V _{GS} =10V, R _{GEN} =6Ω	--	6	--	nS
Turn-on Rise Time	t _r		--	62	--	nS
Turn-off Delay Time	t _{d(off)}		--	18.5	--	nS
Turn-off Fall Time	t _f		--	97	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V,I _S =10A	--	--	1.2	V
Diode Forward Current	I _S		--	--	30	A

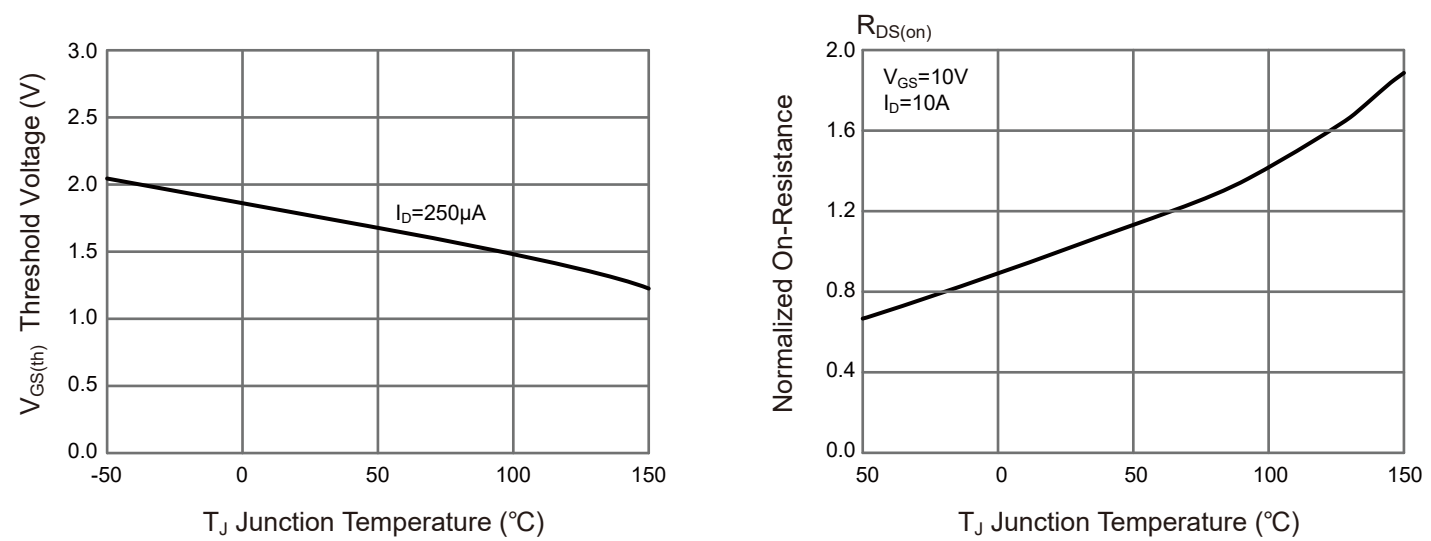
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. EAS Condition: T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25Ω, L=0.1mH, I_{AS}=19A.

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

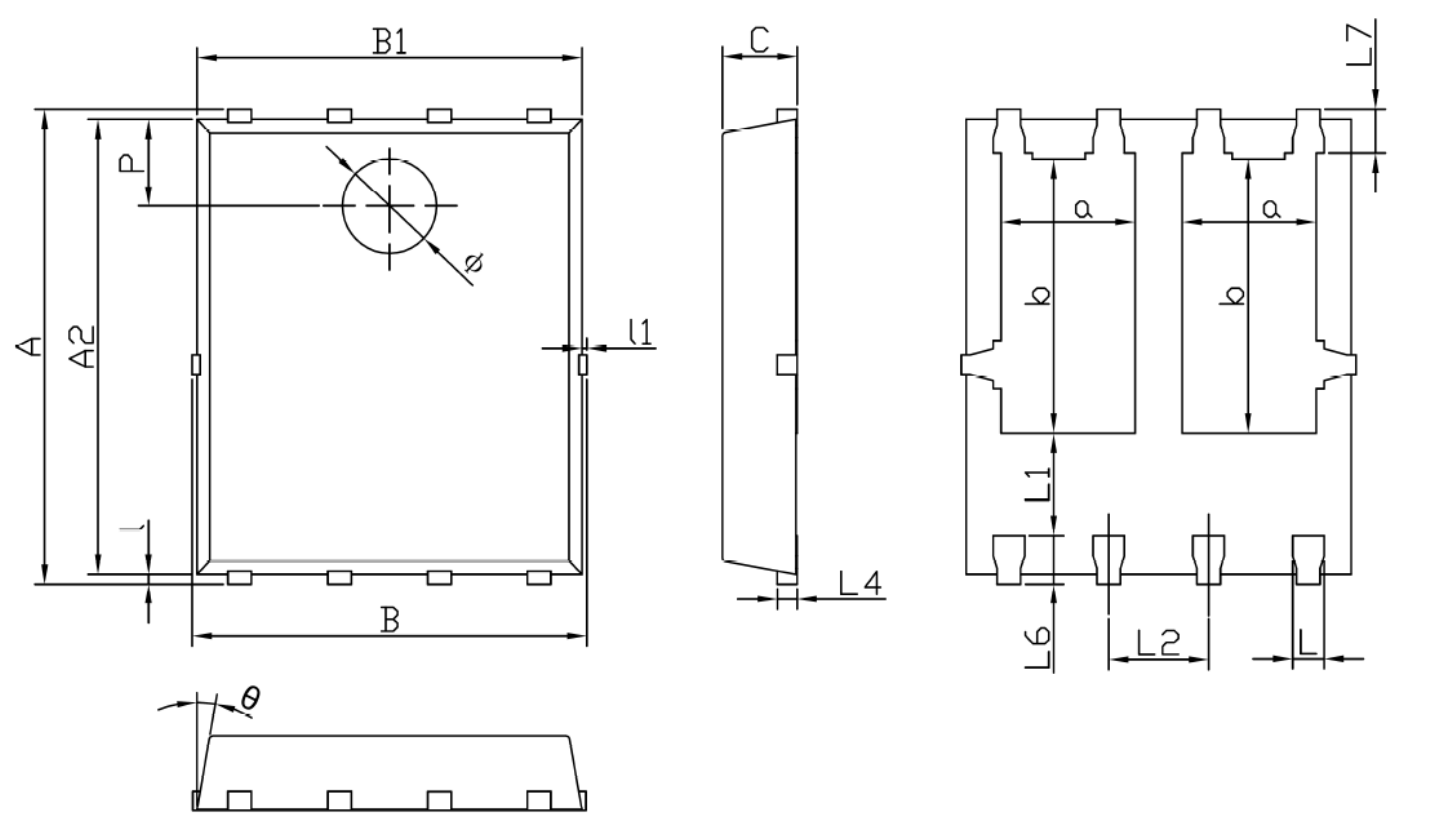
Typical Characteristic Curves





Package Outline

PDFN5x6A-8L
Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	5.90	6.10	L1	1.10	-
a	1.605	1.805	l1	-	0.10
A2	5.70	5.80	L2	1.17	1.37
B	4.90	5.10	L4	0.21	0.34
b	3.375	3.575	L6	0.51	0.71
B1	4.80	5.00	L7	0.45	0.65
C	0.90	1.00	P	1.00	1.20
L	0.35	0.45	θ	8°	12°
I	0.06	0.20	Φ	1.10	1.30

Contact Information

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For additional information, please contact your local Sales Representative.



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