

**DESCRIPTION**

The AM045NS10LPJ is available in PDFN8(5x6) package.

BVDSS	RDS(ON)	ID
100V	4.5mΩ	100A

Application

- DC-DC Converters
- Motor Control
- Portable equipment application

ORDERING INFORMATION

Package Type	Part Number	
PDFN8(5x6)	PJ	AM045NS10LPJ
Note	SPQ:4,000pcs/Reel	
AiT provides all RoHS products		

ABSOLUTE MAXIMUM RATINGS

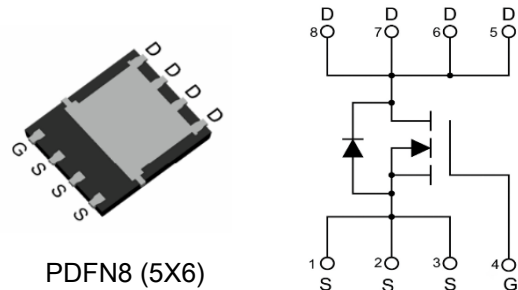
T_J= 25°C, unless otherwise specified.

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	100	A
Continuous Drain Current		70	
Pulsed Drain Current		400	
Single Pulse Avalanche Energy	E _{AS}	380	mJ
Power Dissipation	P _D	150	W
Operation Junction and Storage Temperature Range	T _J , T _{STG}	-55 ~ 150	°C
Thermal Resistance, Junction-case	R _{thJC}	0.83	°C/W

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

FEATURES

- V_{DS} = 100V, I_D = 100A
- R_{DS(ON)} Typ = 4.5mΩ @ V_{GS} = 10V
- R_{DS(ON)} Typ = 6.0mΩ @ V_{GS} = 4.5V
- Fast switching speed
- Low gate charge and R_{ds(on)}
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

PIN DESCRIPTION

PDFN8 (5X6)

Pin#	Symbol	Function
1, 2, 3	S	Source
4	G	Gate
5,6,7,8	D	Drain



ELECTRICAL CHARACTERISTICS

T_J = 25°C, unless otherwise specified.

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	100	-	-	V
Drain- Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V	-	-	1	μA
Gate- Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{GS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	4.5	5.7	mΩ
		V _{GS} =4.5V, I _D =20A	-	6.0	8.0	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} =0 V, V _{DS} =50 V, f=1.0MHz	-	2970	-	pF
Output Capacitance	C _{oss}		-	1125	-	pF
Reverse Transfer Capacitance	C _{rss}		-	24	-	pF
Total Gate Charge	Q _g	V _{DS} =50V, I _D =50A, V _{GS} =10V	-	42	-	nC
Gate-Source Charge	Q _{gs}		-	27	-	nC
Gate-Drain Charge	Q _{gd}		-	7.3	-	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _G =3Ω, I _D =50A	-	12.1	-	ns
Turn-on Rise Time	t _r		-	17.4	-	ns
Turn-off Delay Time	t _{d(off)}		-	47	-	ns
Turn-off Fall Time	t _f		-	32	-	ns
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1A	-	-	1.2	V
Diode Forward Current	I _S	-	-	-	100	A
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =50A,	-	32	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt=100 A/μs	-	146	-	nC

Note:

The EAS Test condition is V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25Ω



TYPICAL PERFORMANCE CHARACTERISTICS

Fig 1. Output Characteristics

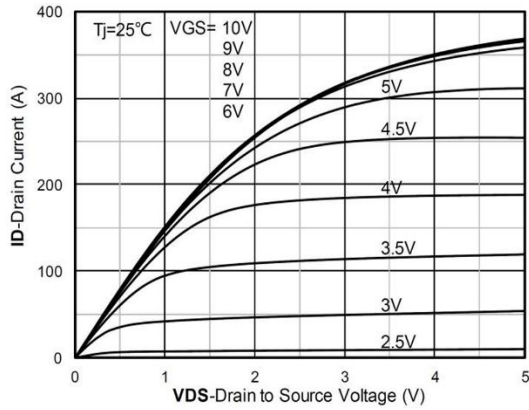


Fig 2. Transfer Characteristics

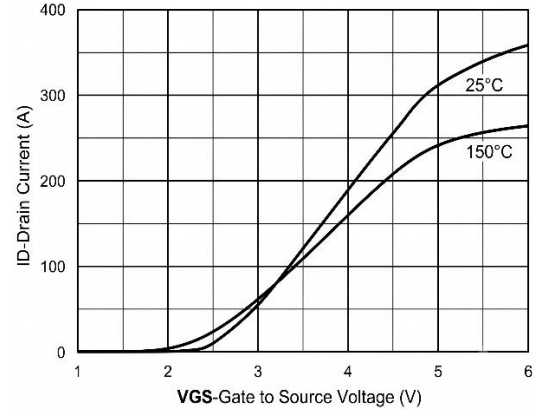


Fig 3. Capacitance Characteristics

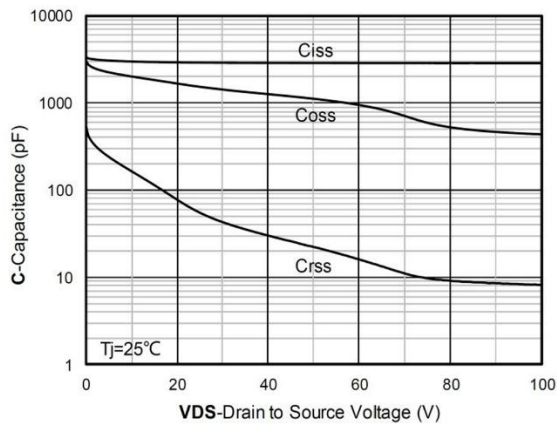


Fig 4. Gate Charge

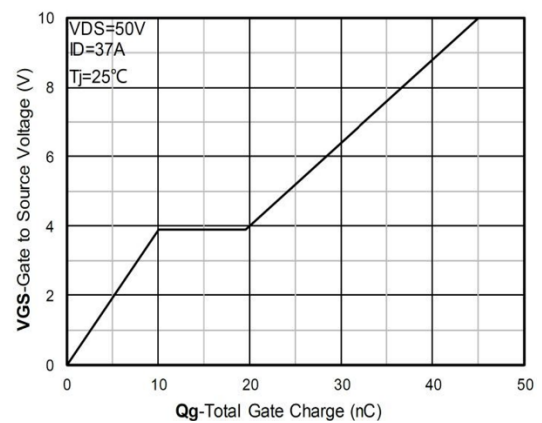


Fig 5. On-Resistance vs Gate to Source Voltage

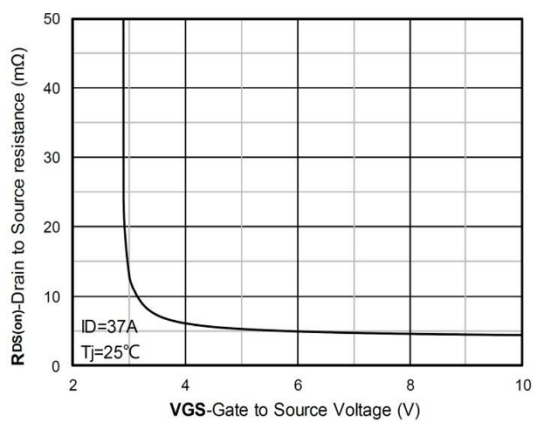


Fig 6. Normalized On-Resistance

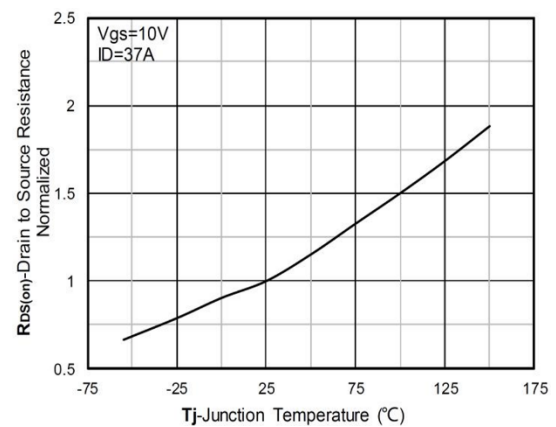




Fig 7. $R_{DS(on)}$ VS Drain Current

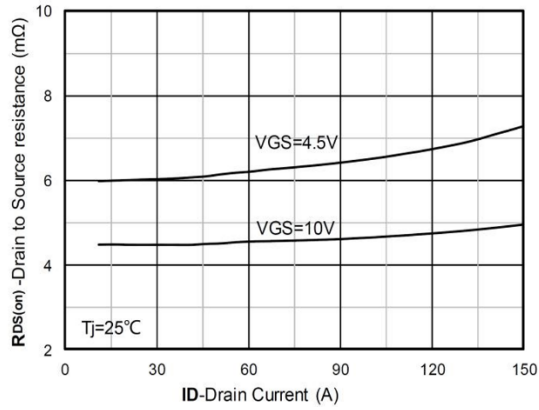


Fig 8. Forward characteristics of reverse diode

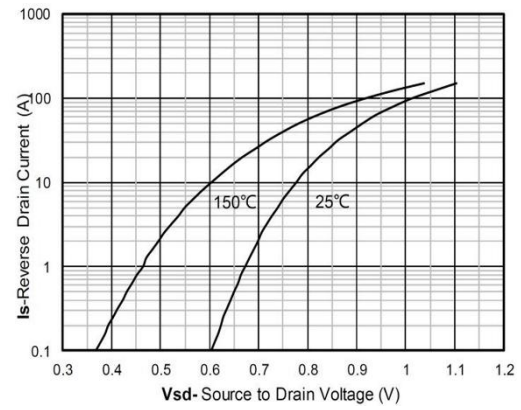


Fig 9. Normalized breakdown voltage

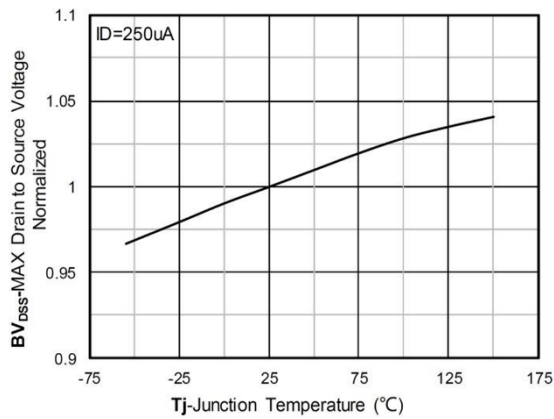


Fig 10. Normalized Threshold voltage

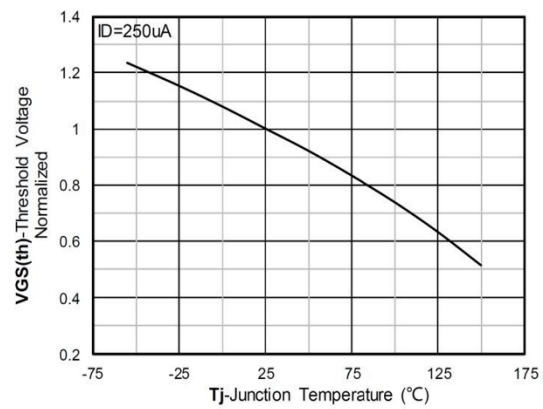


Fig 11. Current dissipation

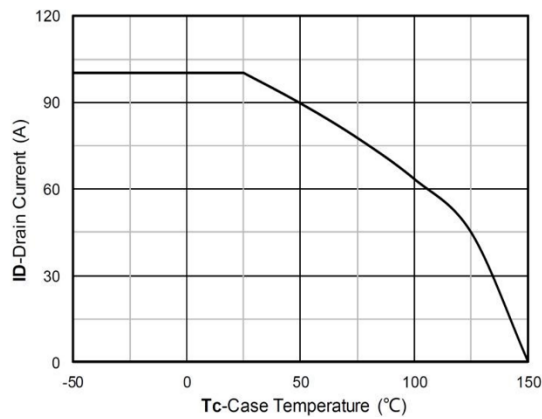


Fig 12. Power dissipation

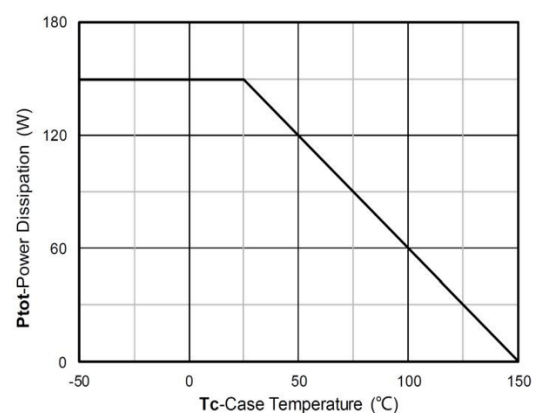




Fig 13. Maximum Transient Thermal Impedance

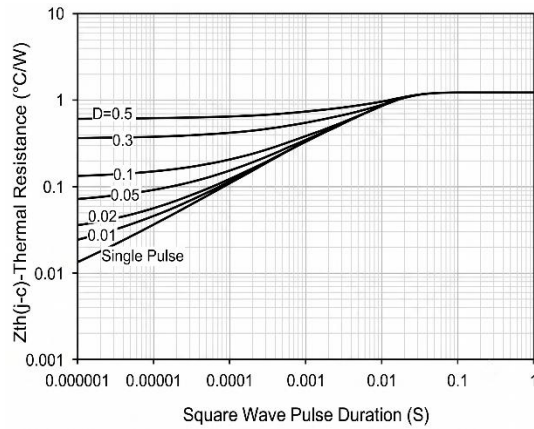
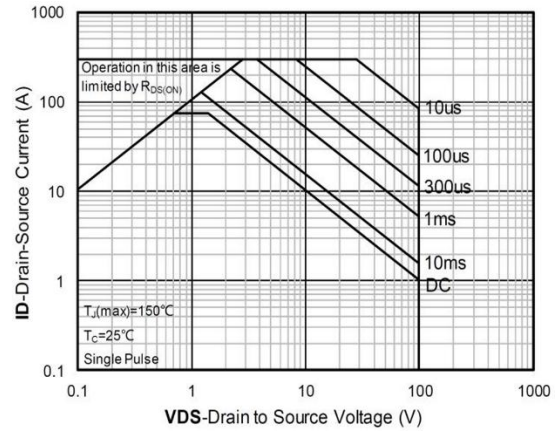


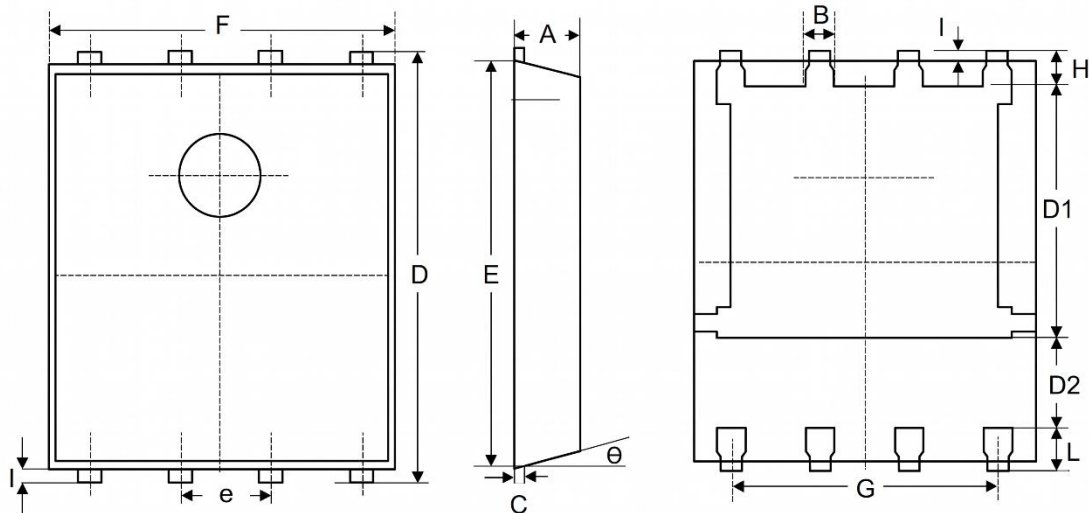
Fig 14. Safe Operation Area





PACKAGE INFORMATION

Dimension in PDFN8(5x6) (Unit: mm):



Symbol	Millimeters	
	Min	Max
A	0.900	1.100
B	0.330	0.510
C	0.200	0.300
D	5.900	6.100
D1	3.380	3.780
D2	1.100	-
E	5.700	5.800
e	1.270 BSC	
F	4.800	5.000
G	0.361	0.396
H	0.410	0.610
I	0.060	0.200
L	0.510	0.710
θ	0°	12°

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