ATG18N100

1000V N-Channel MOSFET

Features

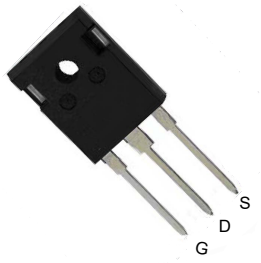
- Fast switching
- Low Gate Charge
- Improved dv/dt capability
- 100% avalanche tested
- Green Device Available

Product Summary

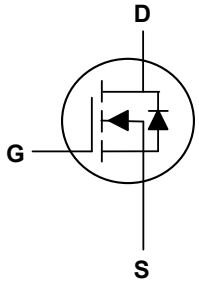
V_{DS}	1000	V
I_D	18	A
$R_{DS(ON)}$ (at V_{GS}=10V)	0.75	Ω

Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- AC to DC Converters



TO-247 Top View



Absolute Maximum Ratings(T_C=25℃, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	1000	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current[1]	I_D	18	A
Pulsed Drain Current[2]	I_{DM}	52	A
Single Pulse Avalanche Energy[3]	E_{AS}	750	mJ
Total Power Dissipation[4]	P_D	470	W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient[1]	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	0.25	℃/W

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V , I_D=250uA	1000	---	---	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	V_{GS}=10V , I_D=9A	---	0.55	0.75	Ω
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=1000V, V_{GS}=0V, T_J=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30V , V_{DS}=0V	---	---	±10	uA
Total Gate Charge	Q_g	V_{DD}=720V , V_{GS}=10V , I_D=13A	---	67	---	nC
Gate-Source Charge	Q_{gs}		---	16	---	
Gate-Drain Charge	Q_{gd}		---	25	---	
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=450V ,R_G=25Ω, I_D=13A	---	40	---	ns
Rise Time	T_r		---	50	---	
Turn-Off Delay Time	$T_{d(off)}$		---	235	---	
Fall Time	T_f		---	68	---	
Input Capacitance	C_{iss}	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	2840	---	pF
Output Capacitance	C_{oss}		---	290	---	
Reverse Transfer Capacitance	C_{rss}		---	30	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current[1]	I_S	T_C=25℃	---	---	18	A
Pulsed Source Current	I_{SM}		---	---	112	A
Diode Forward Voltage[2]	V_{SD}	V_{GS}=0V , I_S=13A , T_J=25℃	---	0.7	---	V
Reverse Recovery Time	t_{rr}	I_S=13A ,V_{GS}=0V di/dt=100A/μs，T_J=25℃	---	590	---	nS
Reverse Recovery Charge	Q_{rr}		---	6702	---	nC

Note:

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

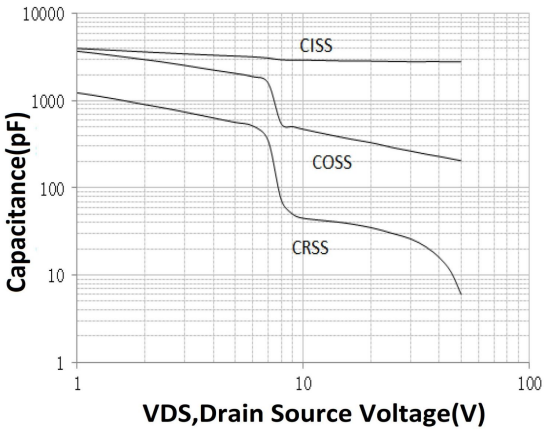
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=8.9mH

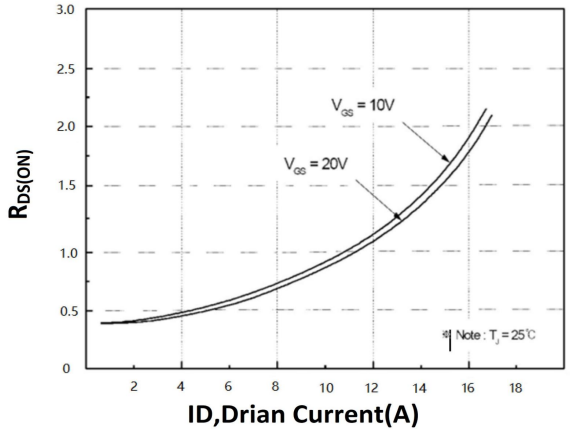
4.The power dissipation is limited by 150℃ junction temperature

Typical Characteristics

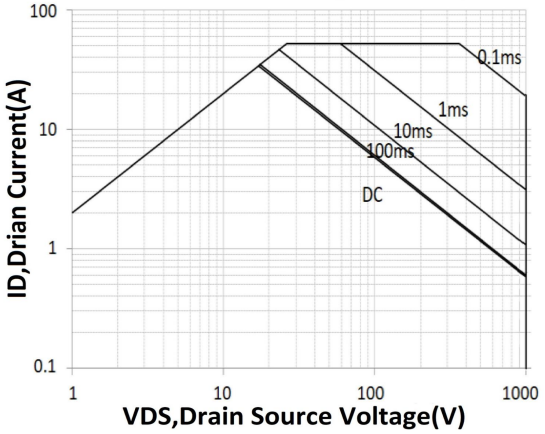
Capacitance Characteristics



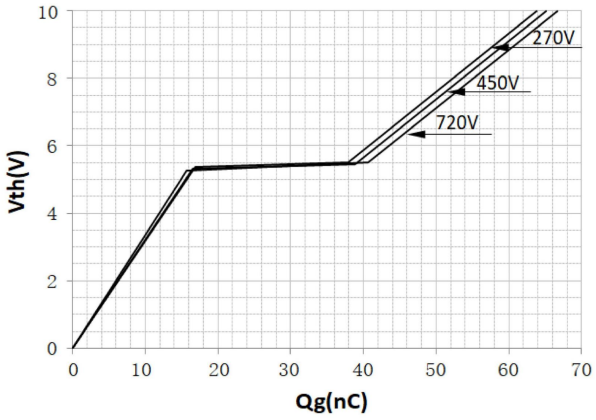
On-Resistance Variationvs.I_D



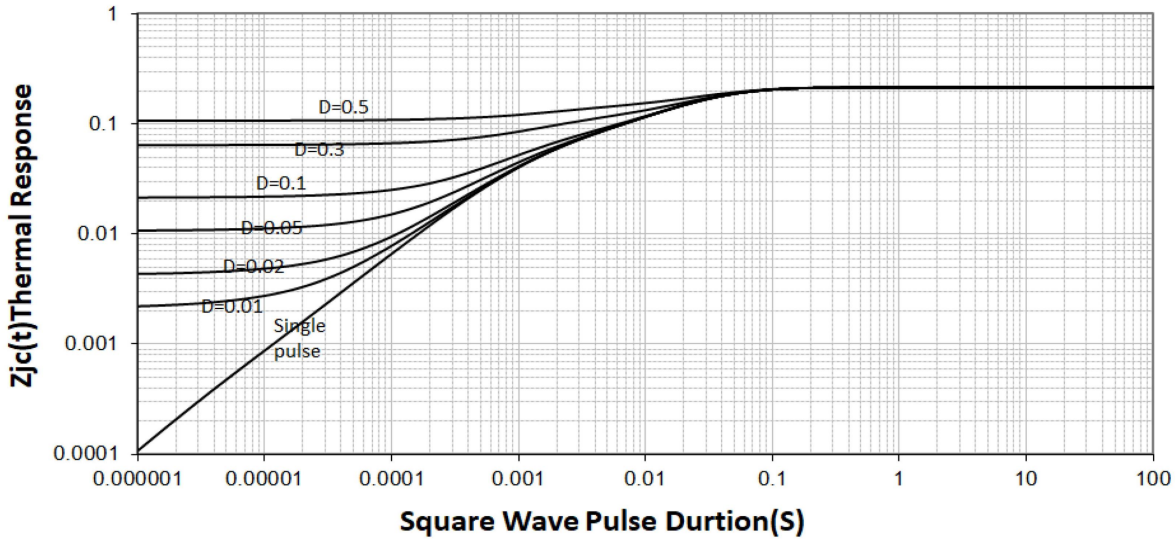
Maximum Safe Operating Area



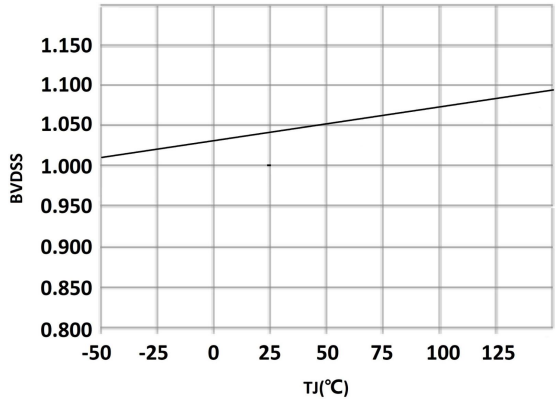
Gate charge vs.V_{GS}



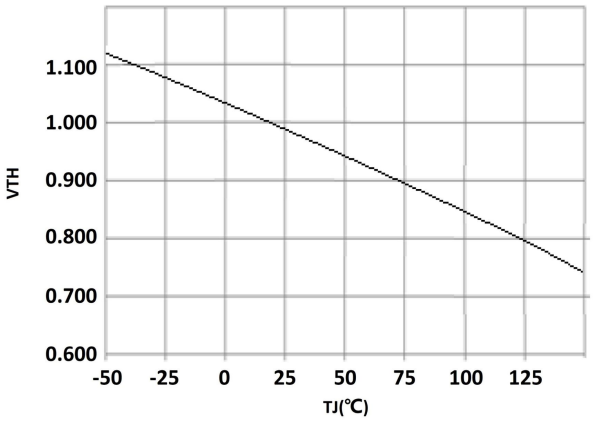
Thermal Impedance



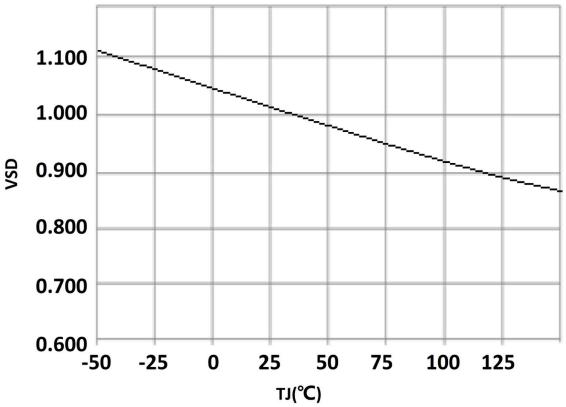
Normalized BV_{DSS} vs. temperature



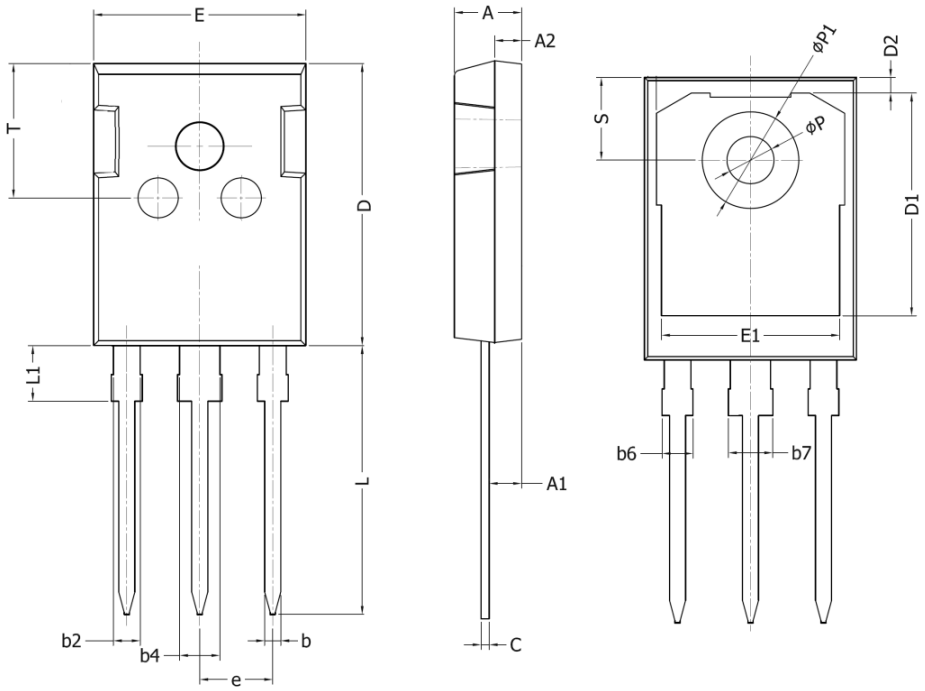
Normalized VTH vs.temperature



Normalized V_{SD} vs. temperature



TO-247 Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.90	5.20
A1	2.31	2.51
A2	1.9	2.1
b	1.16	1.26
b2	1.96	2.06
b4	2.96	3.06
b6	-	2.25
b7	-	3.25
C	0.59	0.66
D	20.90	21.20
D1	16.25	16.85
D2	1.05	1.35
E	15.75	16.10
E1	13.00	13.60
e	5.436 BSC	
L	19.80	20.20
L1	-	4.30
P	3.40	3.60
P1	7.00	7.40
S	6.05	6.25
T	9.80	10.20