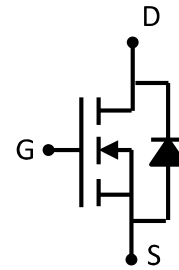
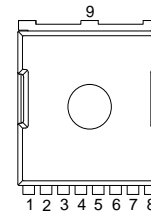


Features

- 85V,300A
- $R_{DS(ON)} < 1.4m\Omega @ V_{GS}=10V$ TYP:1.2m Ω
- Surface-mounted package
- Super Trench
- T_j max 175°
- Advanced trench cell design



Schematic diagram



TOLL-8

Applications

- Power Tool appliances
- BMS appliances
- High power inverter system

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G014N08T	APG014N08T	TOLL-8	-	-	2000

ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	85	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C = 25^{\circ}C$)	I_D	300	A
Continuous Drain Current ($T_C = 100^{\circ}C$)		267	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	1200	A
Single Pulsed Avalanche Energy	E_{AS}	2800	mJ
Power Dissipation	P_D	500	W
Thermal Resistance from Junction to Case ⁽²⁾	$R_{\theta JC}$	0.25	$^{\circ}C/W$
Thermal Resistance- Junction to Ambient ⁽²⁾	$R_{\theta JA}$	40	$^{\circ}C/W$
Junction Temperature	T_J	175	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +175	$^{\circ}C$

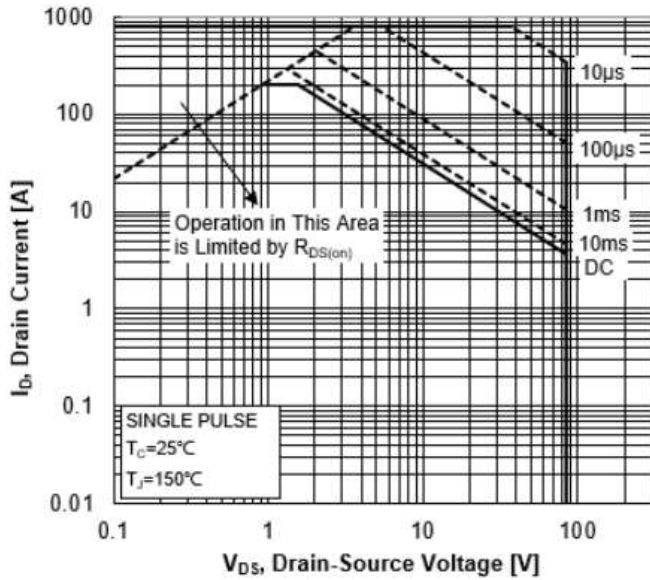
MOSFET ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	85	95	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =80V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0	-	4.0	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} =10V, I _D =50A	-	1.2	1.4	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1.0MHz	-	14490	-	pF
Output Capacitance	C _{oss}		-	2350	-	
Reverse Transfer Capacitance	C _{rss}		-	472	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =50V, I _D =50A, R _G =4.5Ω	-	39	-	ns
Turn-on rise time	t _r		-	122	-	
Turn-off delay time	t _{d(off)}		-	115	-	
Turn-off fall time	t _f		-	137	-	
Total Gate Charge	Q _g	V _{DS} =50V, I _D =50A, V _{GS} =10V	-	240	-	nC
Gate-Source Charge	Q _{gs}		-	56	-	
Gate-Drain Charge	Q _{gd}		-	60	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V _{SD}	T _J =25°C, V _{GS} =0V, I _S =50A	-	-	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =50A, di/dt=100A/us		120		nS
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25°C, I _F =50A, di/dt=100A/us		360		nC

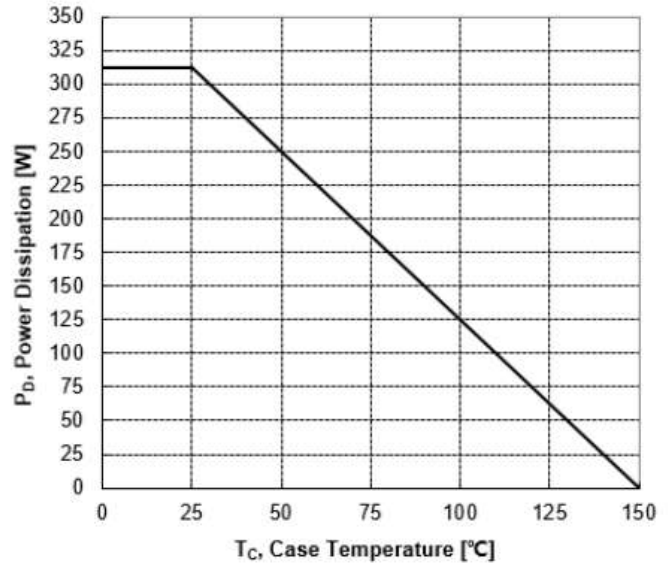
Notes:

1. Pulse width ≤ 300 μs, duty cycle ≤ 2 %
2. Surface Mounted on minimum footprint pad area.
3. Limited by bonding wire

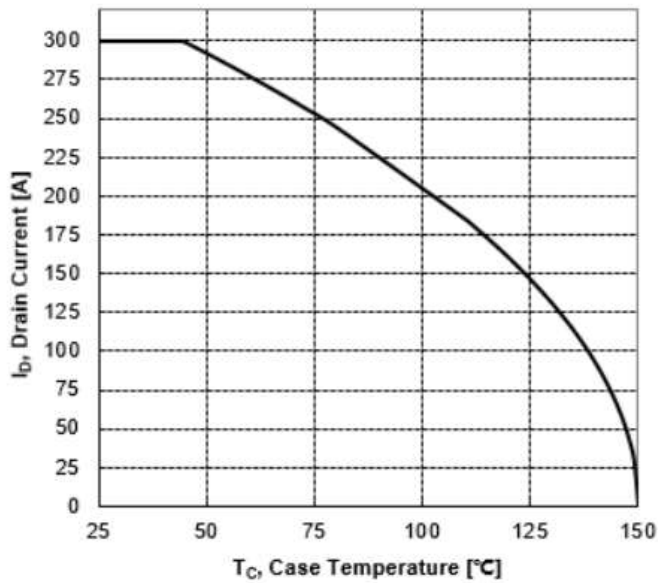
Safe Operating Area



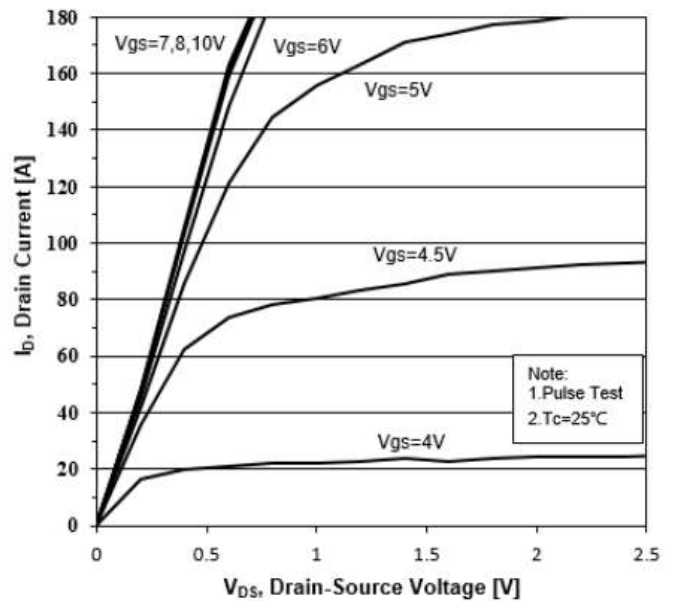
Maximum Power Dissipation vs Case Temperature



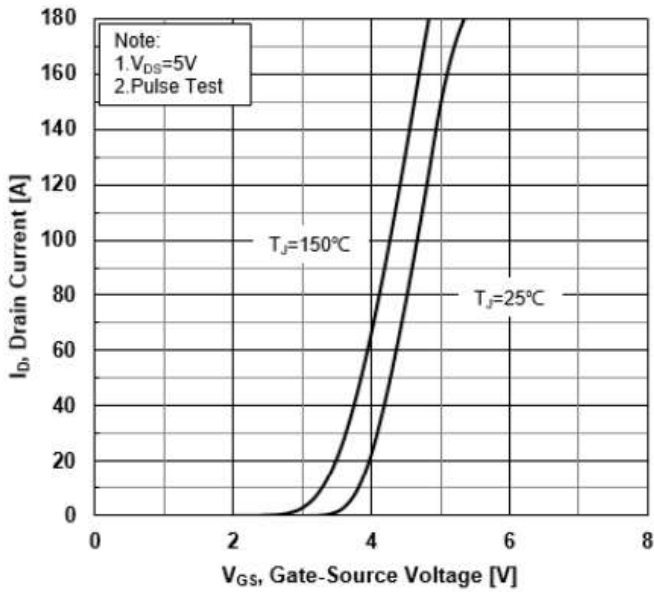
Maximum Continuous Drain Current vs Case Temperature



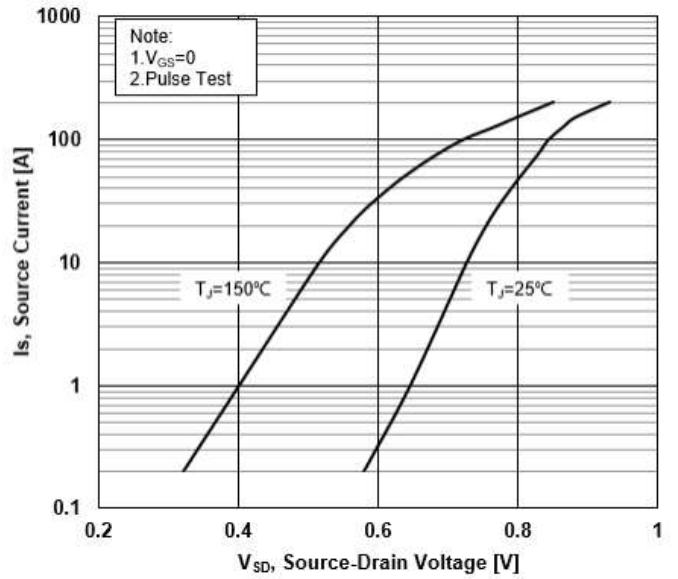
Typical Output Characteristics



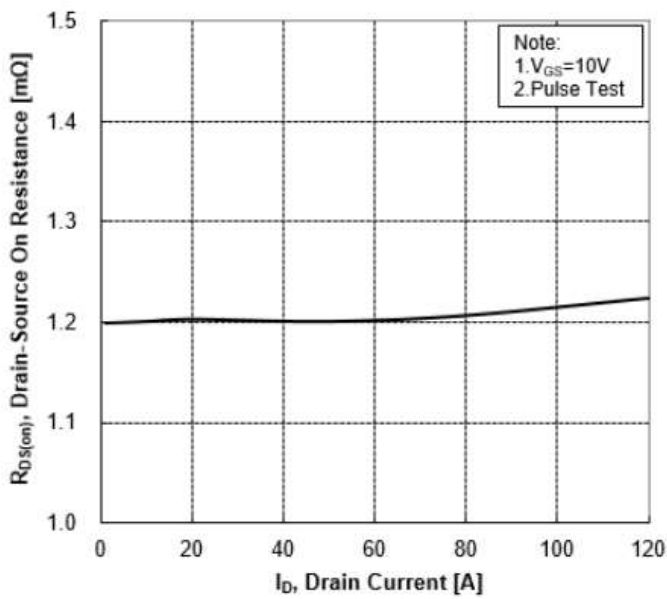
Typical Transfer Characteristics



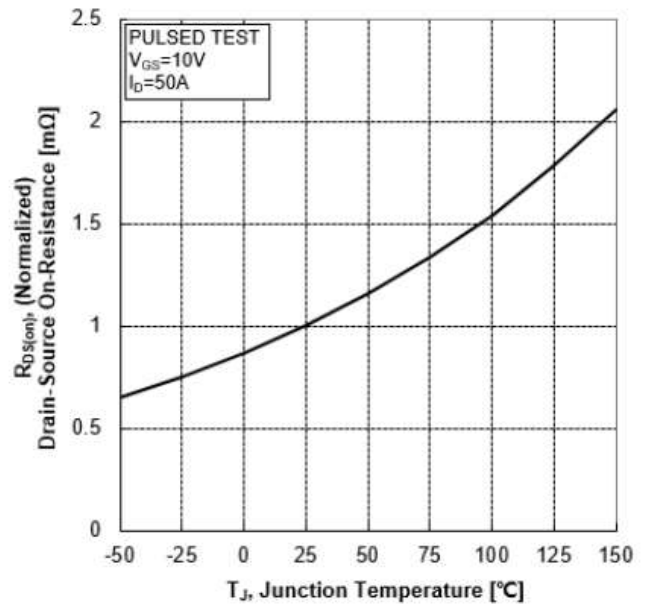
Source-Drain Diode Forward Characteristics



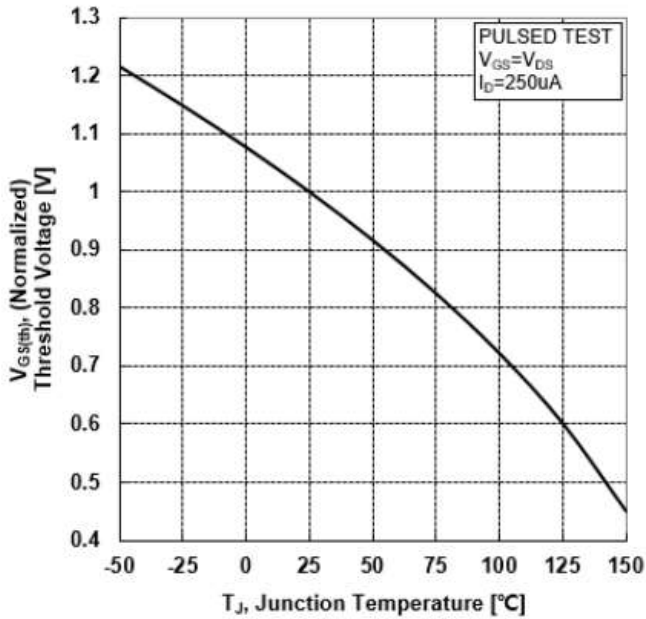
Drain-Source On-Resistance vs Drain Current



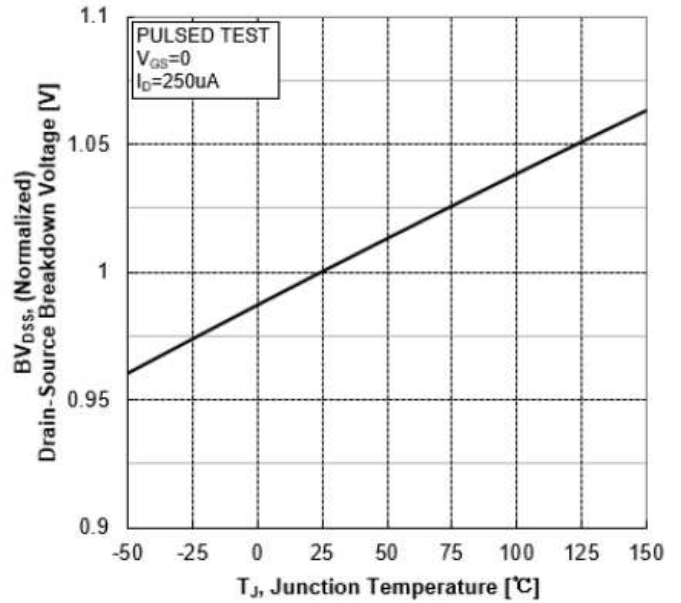
Normalized On-Resistance vs Junction Temperature



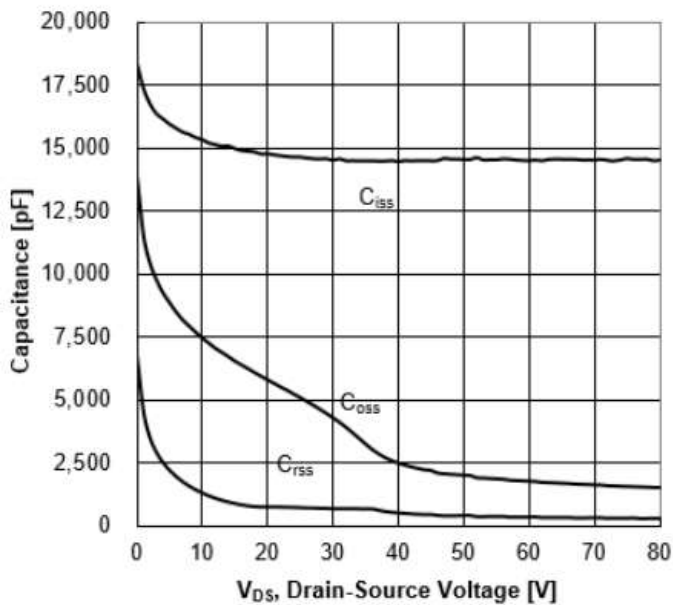
Normalized Threshold Voltage vs Junction Temperature



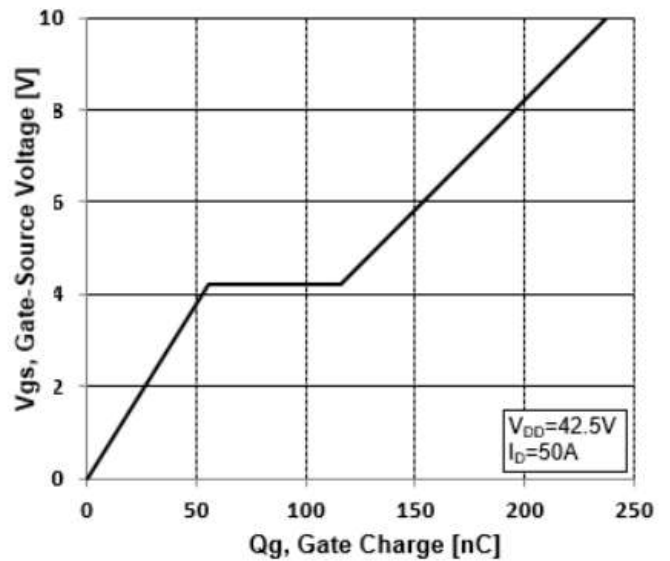
Normalized Breakdown Voltage vs Junction Temperature



Capacitance Characteristics

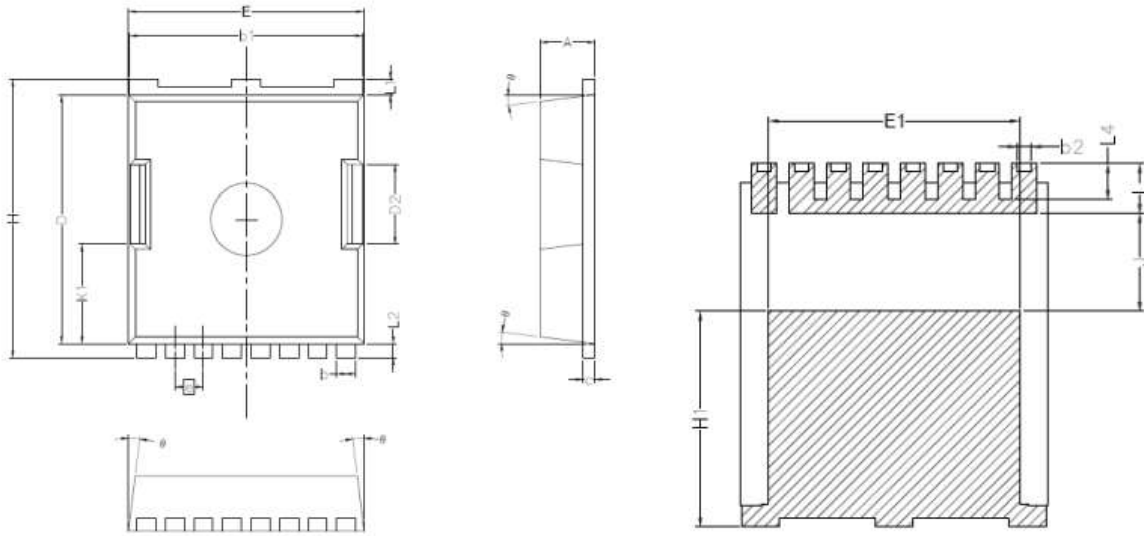


Typical Gate Charge vs Gate-Source Voltage



APG014N08T
N-Channel Enhancement Mosfet

TOLL-8L Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.20	2.40
b	0.90	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D2	3.10	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
θ	4°	10°

Revision History

Revision	Release	Remark
V1.0	2023/03/07	Initial Release

Disclaimer

The information given in this document describes the independent performance of the product, but similar performance is not guaranteed under other working conditions, and cannot be guaranteed when installed with other products or equipment. To achieve the required performance of the product in actual scenarios, the customer should conduct a complete application test to assess the functionality of the product.

Allpower assumes no responsibility for equipment failures result from using products at values that exceed the ratings, operating conditions, or other parameters listed in the product specifications.

The product described in this specification is not applicable for aerospace or other applications which requires high reliability. Customers using or selling these products for use in medical, life-saving, or life-sustaining applications do so at their own risk and agree to fully indemnify.

Due to product or technical improvements, the information described or contained herein may be changed without prior notice.