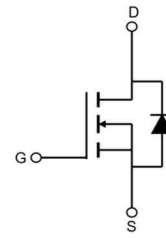


**Features**

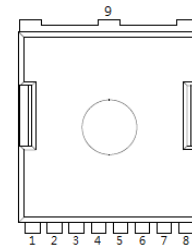
- 60V,229A  
 $R_{DS(on)} < 2.2m\Omega @ V_{GS}=10V$  TYP:1.8m $\Omega$   
 $R_{DS(on)} < 2.6m\Omega @ V_{GS}=4.5V$  TYP:2.3m $\Omega$
- Surface-mounted package
- Advanced trench cell design



Schematic Diagram

**Applications**

- LCD TV appliances
- High power inverter system
- LCDM appliances



**TOLL-8L**

1	Gate(G)
2,3,4,5,6,7,8	Source(S)

**Package Marking and Ordering Information**

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
229N06T	AP229N06T	TOLL-8L	-	-	2000

**ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current (Tc=25°C) <sup>(1)</sup>	I <sub>D</sub>	229	A
Continuous Drain Current (Tc=100°C) <sup>(1)</sup>	I <sub>D</sub>	162	A
Pulsed Drain Current <sup>(1)</sup>	I <sub>DM</sub>	640	A
Drain Power Dissipation	P <sub>D</sub>	300	W
Single Pulsed Avalanche Energy (Tc=25°C,L=1.0mH)	E <sub>AS</sub>	1512	mJ
Thermal Resistance from Junction to Case <sup>(2)</sup>	R <sub>θJC</sub>	0.5	°C/W
Thermal Resistance- Junction to Ambient <sup>(2)</sup>	R <sub>θJA</sub>	42	°C/W
Junction Temperature	T <sub>J</sub>	-55~ +175	°C
Storage Temperature	T <sub>STG</sub>	-55~ +175	°C

**MOSFET ELECTRICAL CHARACTERISTICS(T<sub>J</sub>=25°C unless otherwise noted)**

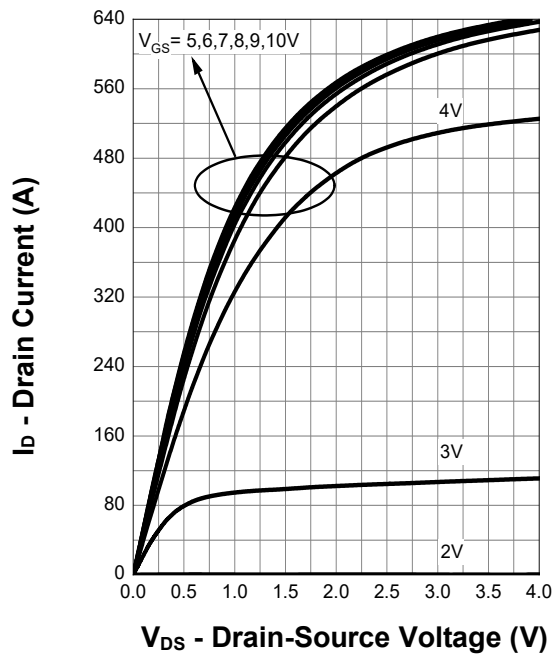
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	60	-	-	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V	-	-	±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	-	2.5	V
Drain-source on-resistance <sup>(1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =50A	-	1.8	2.2	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =30A	-	2.3	2.6	
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, f=1MHz	-	15321	-	pF
Output Capacitance	C <sub>oss</sub>		-	545	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	94	-	
<b>Switching characteristics</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> =50A, R <sub>G</sub> =3.9Ω, V <sub>GS</sub> =10V	-	25	-	nS
Turn-on rise time	t <sub>r</sub>		-	113	-	
Turn-off delay time	t <sub>d(off)</sub>		-	198	-	
Turn-off fall time	t <sub>f</sub>		-	122	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, I <sub>D</sub> =50A, V <sub>GS</sub> =10V	-	254	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	59	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	31	-	
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>(1)</sup>	V <sub>SD</sub>	T <sub>J</sub> =25°C, V <sub>GS</sub> =0V, I <sub>S</sub> =50A	-	-	1.3	V
Diode Forward current	I <sub>S</sub>	T <sub>C</sub> =25°C	-	229	-	A
Body Diode Reverse Recovery Time	t <sub>rr</sub>	T <sub>J</sub> =25°C, I <sub>F</sub> =50A, di/dt=100A/us	-	22	-	nS
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>		-	18	-	nC

**Notes:**

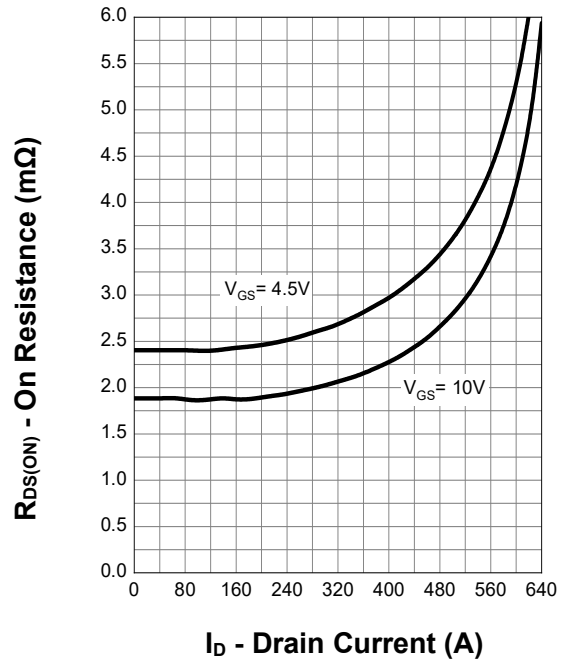
- 1.Pulse width ≤300μs, duty cycle ≤2%
2. Surface Mounted on 1 in<sup>2</sup> pad area, t ≤10 sec
- 3.Guaranteed by design,not subject to production testing
- 4.Limited by bonding wire

## Typical Characteristics

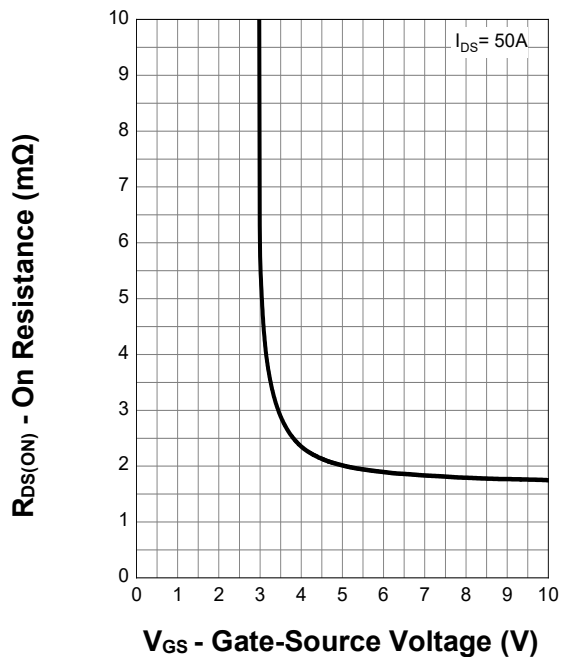
Output Characteristics



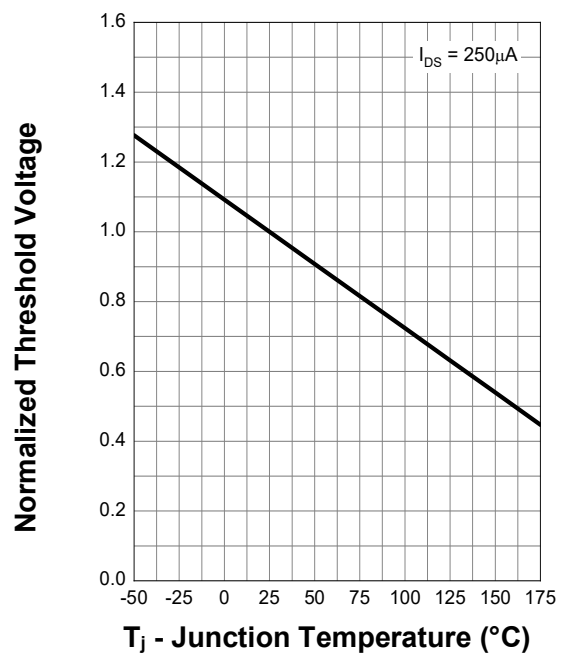
On Resistance



Transfer Characteristics

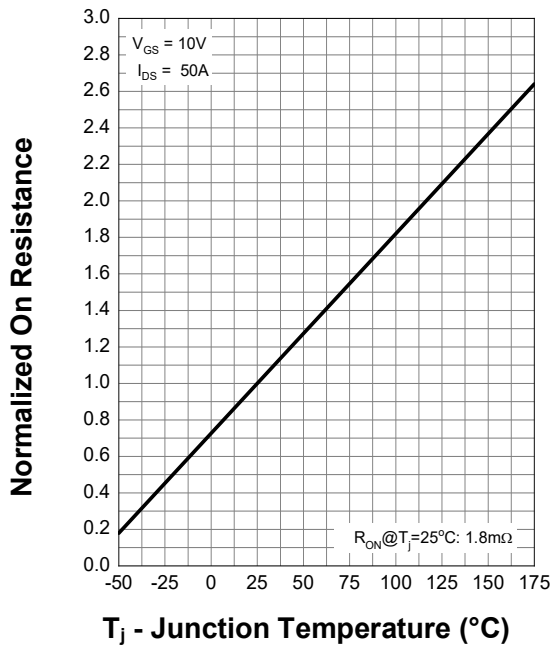


Normalized Threshold Voltage

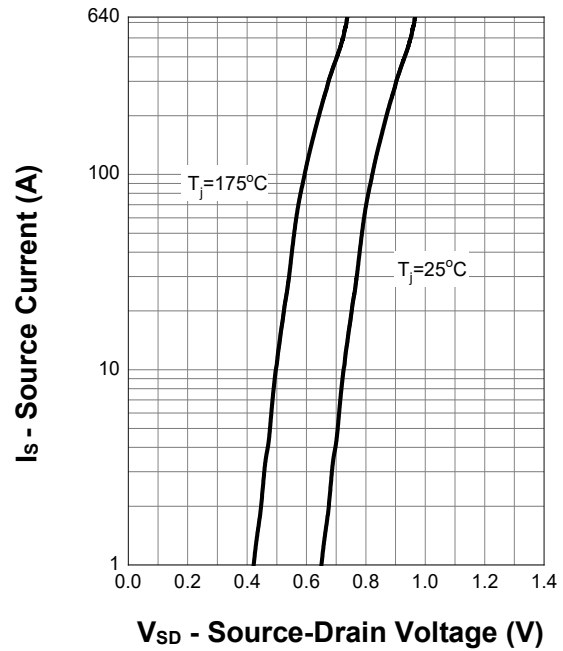


Typical Characteristics (cont.)

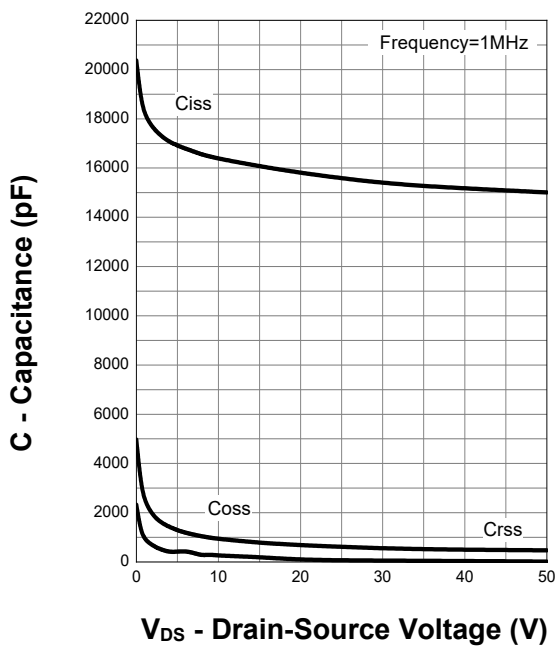
Normalized On Resistance



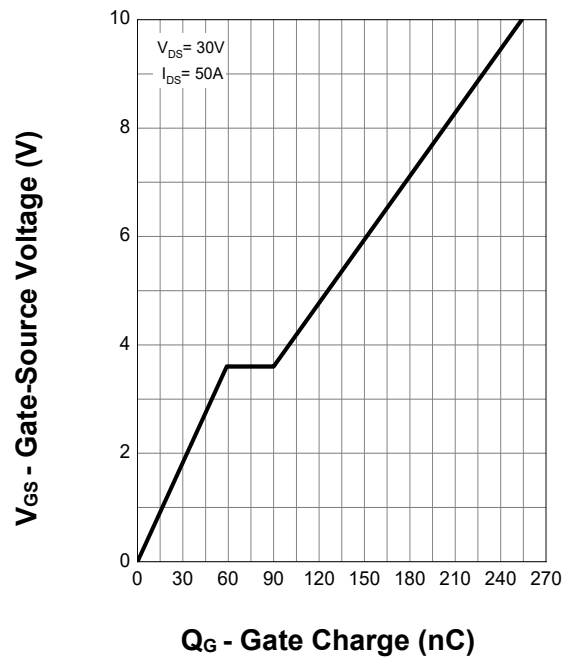
Diode Forward Current



Capacitance

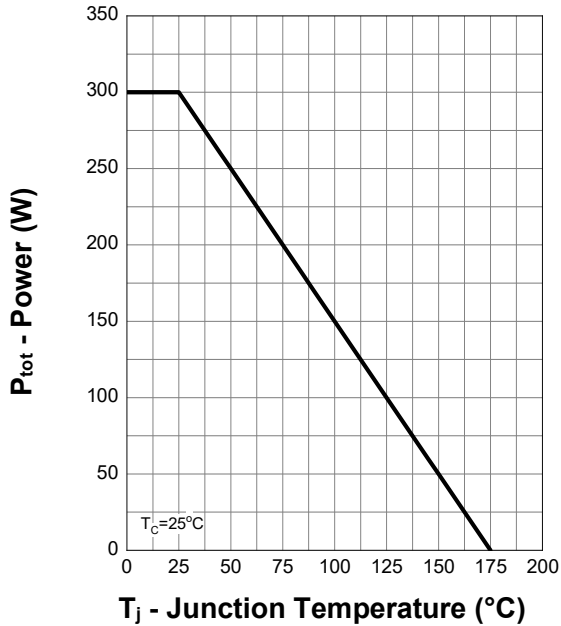


Gate Charge

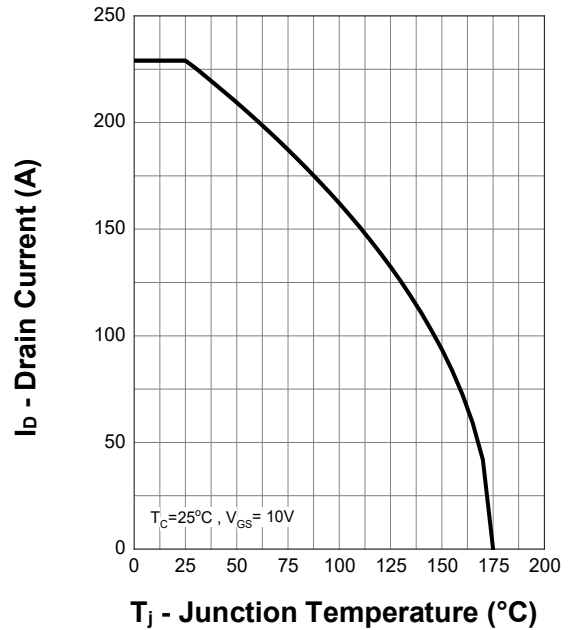


Typical Characteristics (cont.)

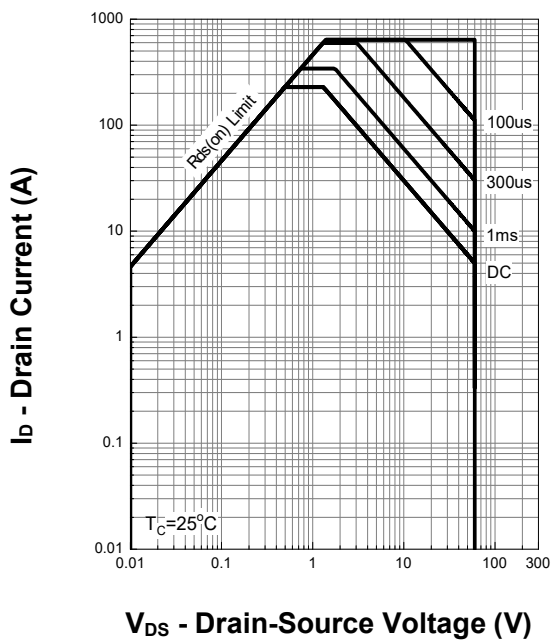
Power Capability



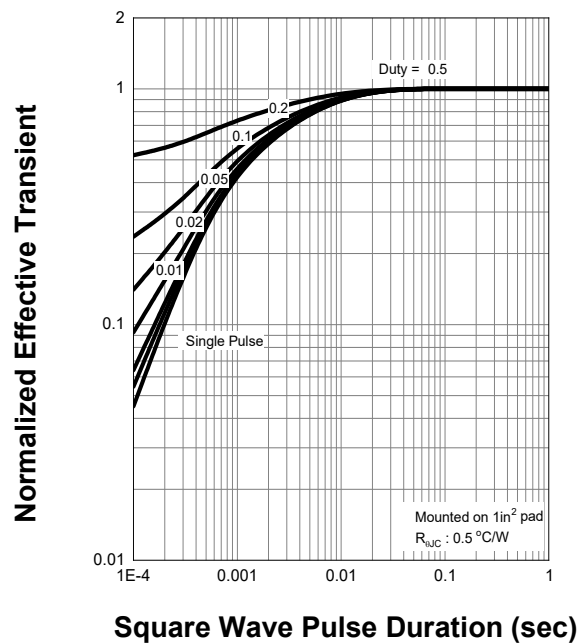
Current Capability



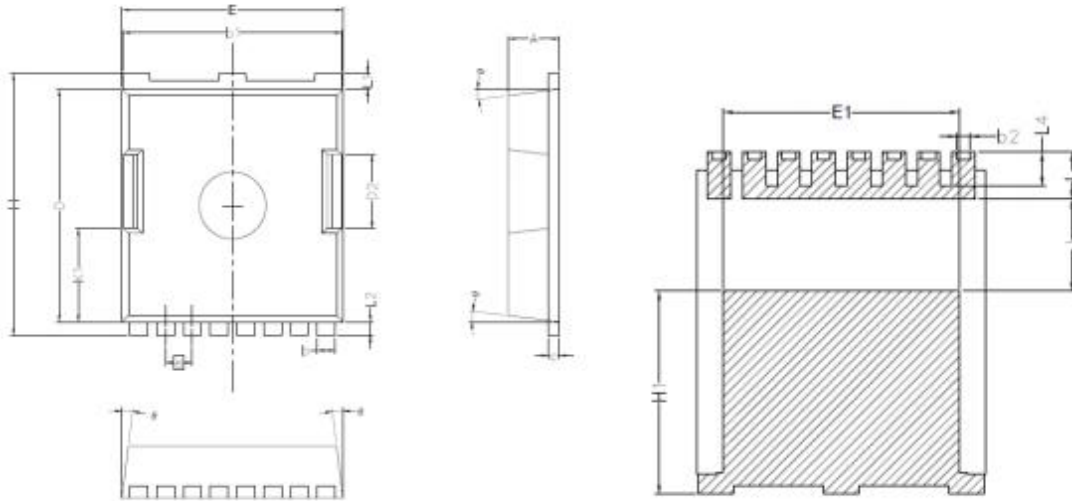
Safe Operating Area



Transient Thermal Impedance



**Package Dimensions of 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
$\theta$	4°	10°

## Revision History

Revision	Release	Remark
V1.0	2023/06/01	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.