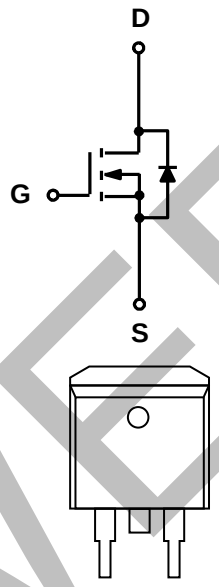
APG028N08D

N-Channel Enhancement Mosfet

ALLPOWER
DATA SHEET

Features

- 80V,238A
  $R_{DS(ON)}$ <2.8mΩ@V_{GS}=10V TYP:2.5mΩ
- Surface-mounted package
- Super Trench
- Advanced trench cell design



TO-263

Applications

- Power appliances
- BMS appliances
- High power inverter system

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G028N08D	APG028N08D	TO-263	-	-	800

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ 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_a =25℃) (2,3)	I_D	238	A
Pulsed Drain Current (1,2,3)	I_{DM}	900	A
Single Pulsed Avalanche Energy (V_{DD} =50V,L=0.1mH) (2)	E_{AS}	900	mJ
Drain Power Dissipation	P_D	158	W
Thermal Resistance from Junction to Case(2)	$R_{\theta JC}$	0.8	℃/W
Thermal Resistance- Junction to Ambient(2)	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

1. Pulse width ≤ 300 μs, duty cycle ≤ 2 %
2. Surface Mounted on n 1 in2 pad area, t ≤ 10 sec.
3. Limited by bonding wire

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ 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	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =64V, 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[a]	$R_{DS(on)}$	V_{GS} =10V, I_D =30A	-	2.5	2.8	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =40V, V_{GS} =0V, f =1.0MHz	-	5591	-	pF
Output Capacitance	C_{oss}		-	744	-	
Reverse Transfer Capacitance	C_{rss}		-	75	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=40V, I_D=30A, R_G=4.5Ω, R_L=1.3Ω,V_G=10V	-	23	-	ns
Turn-on rise time	t_r		-	65	-	
Turn-off delay time	$t_{d(off)}$		-	71	-	
Turn-off fall time	t_f		-	73	-	
Total Gate Charge	Qg	V_{DS}=40V, I_D=30A, V_{GS}=10V	-	101	-	nC
Gate-Source Charge	Qgs		-	28	-	
Gate-Drain Charge	Qgd		-	25	-	
Source-Drain Diode characteristics						
Diode Forward voltage[a]	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=30A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	-	238	A
Body Diode Reverse Recovery Time	trr	T_J=25℃， IF=30A,di/dt=100A/us		62		ns
Body Diode Reverse Recovery Charge	Qrr	T_J=25℃， IF=30A,di/dt=100A/us		83		uc

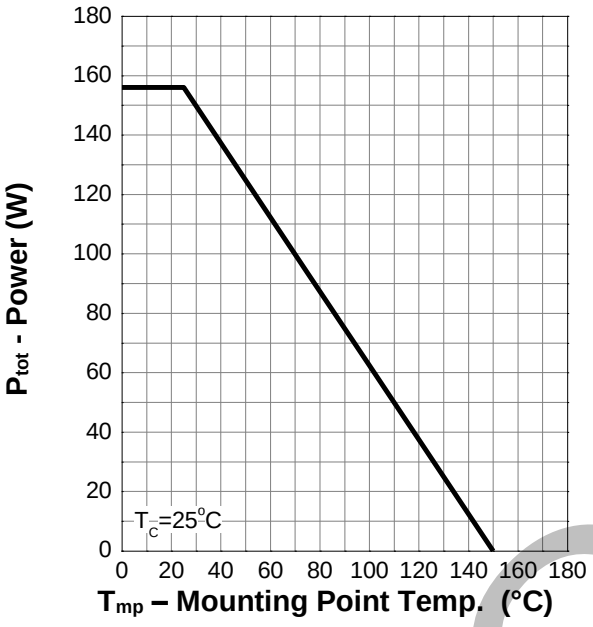
Notes:

a) Pulse width ≤ 300 μs, duty cycle ≤ 2%

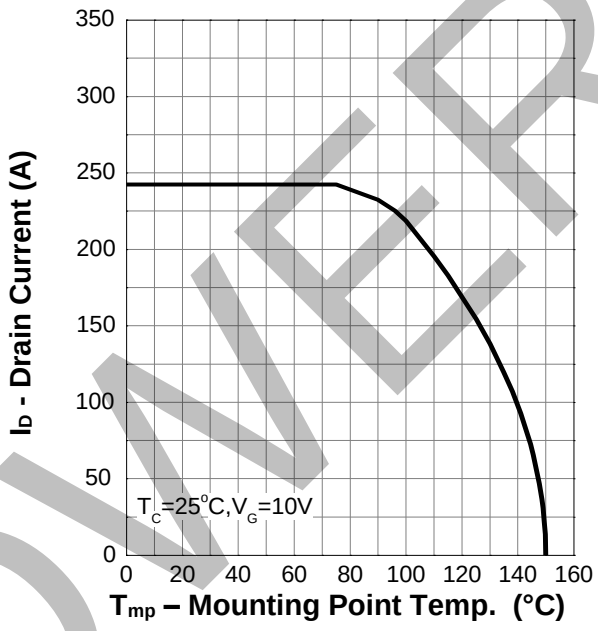
b) Guaranteed by design, not subject to production testing

Typical Characteristics

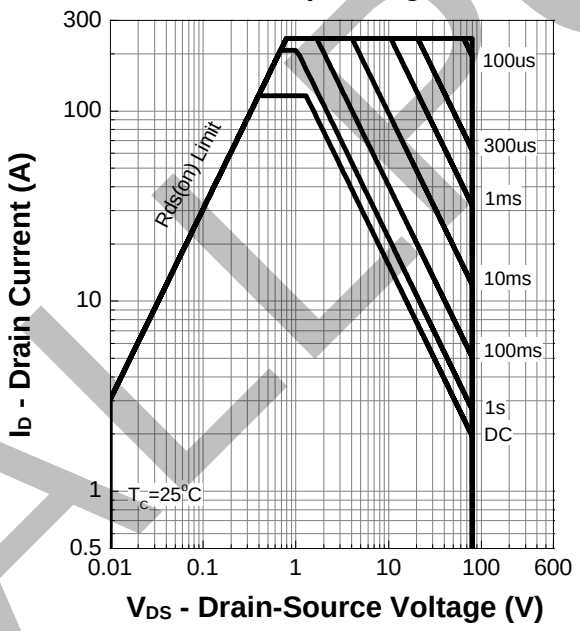
Power Capability



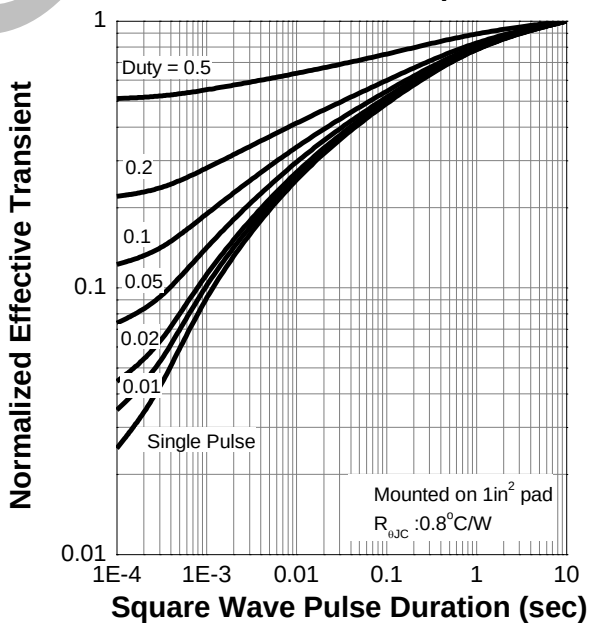
Current Capability



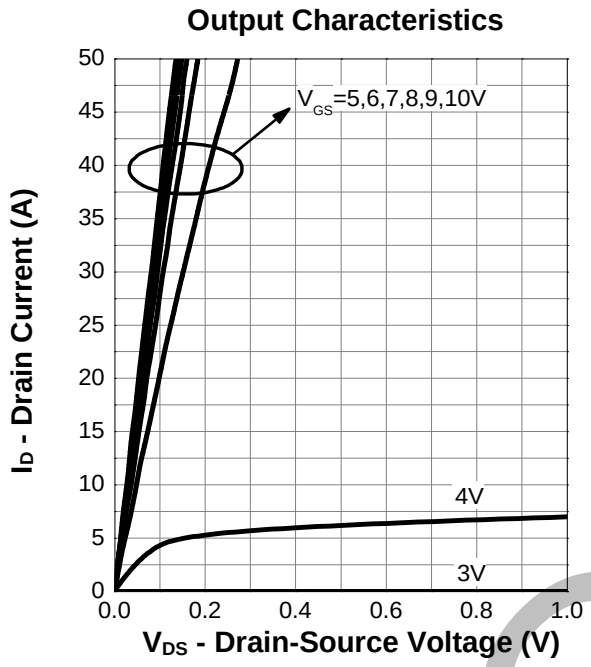
Safe Operating Area

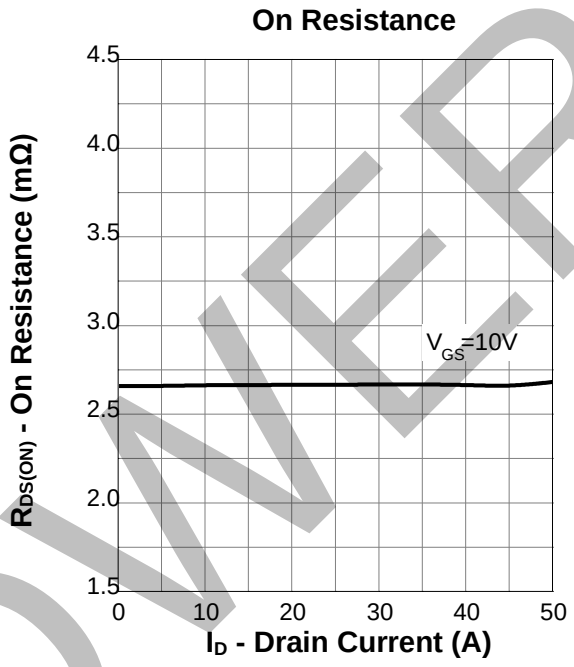


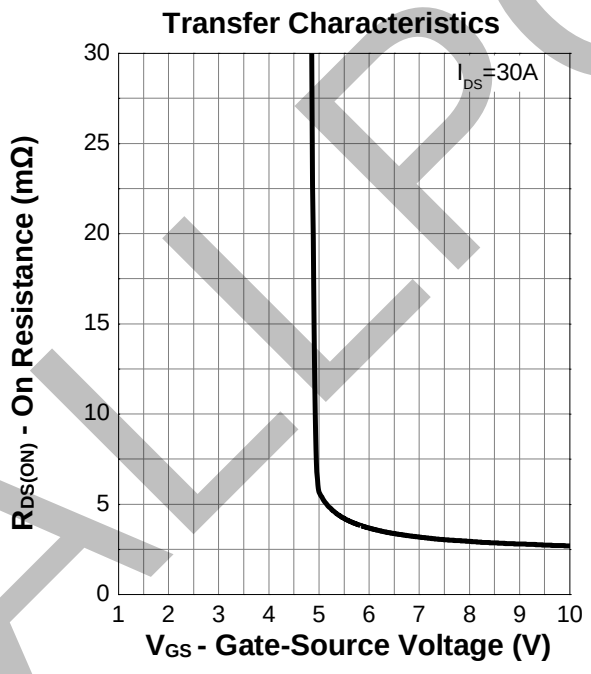
Transient Thermal Impedance

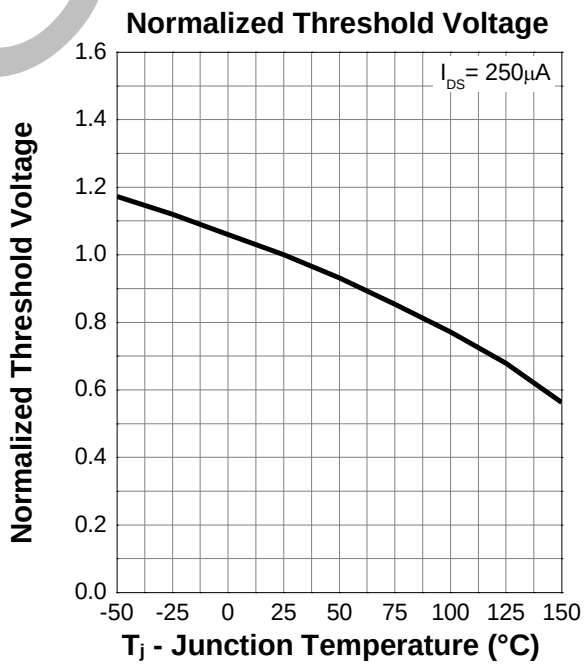


Typical Characteristics (cont.)

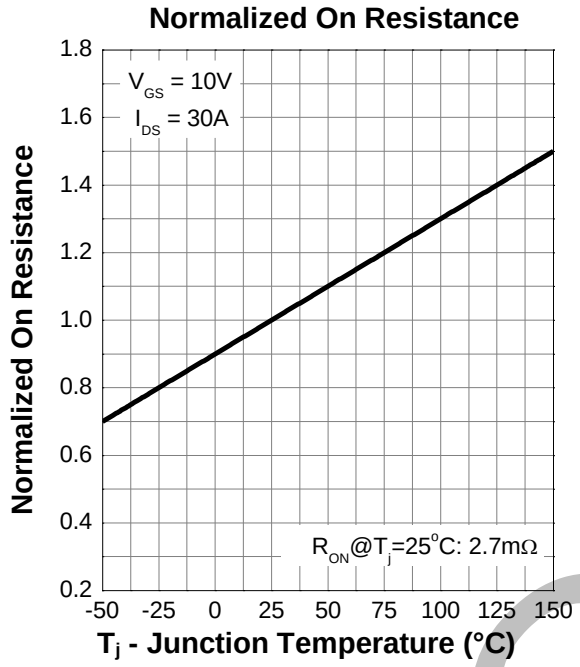


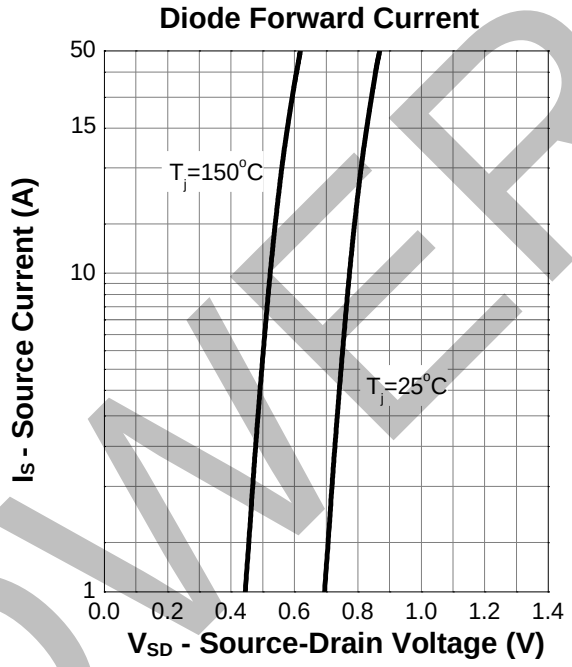


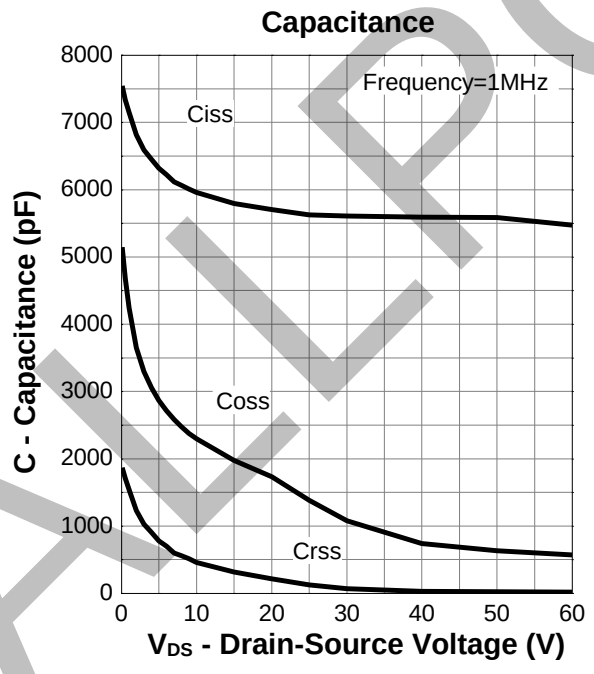


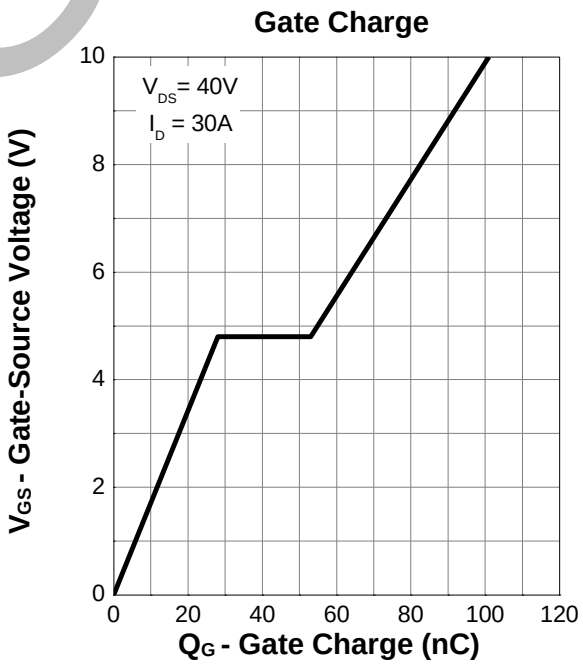


Typical Characteristics (cont.)









Package Dimensions

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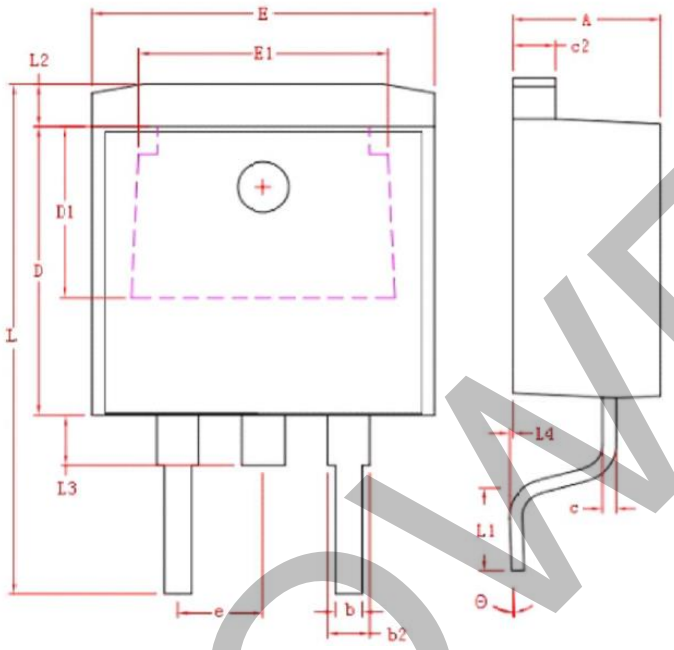

Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.40	4.80
b	0.76	1.00
L4	0.00	0.25
C	0.36	0.50
L3	1.50 REF	
L1	2.29	2.79
E	9.80	10.40
E1	7.40 REF	
c2	1.25	1.45
b2	1.17	1.47
D	8.60	9.00
D1	5.10 REF	
e	2.54 REF	
L	14.6	15.8
θ	$0^\circ \pm 3^\circ$	
L2	1.27 REF	