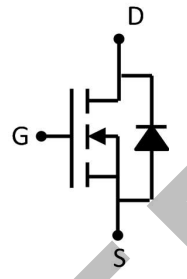
APG060N12D

N-Channel Enhancement Mosfet

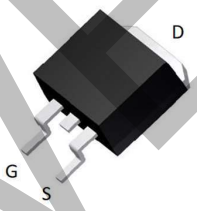
ALLPOWER
DATA SHEET

Features

- 120V,100A
  $R_{DS(ON)}$ <6.0mΩ @V_{GS}=10V TYP:5.5mΩ
  $R_{DS(ON)}$ <8.0mΩ @V_{GS}=6V TYP:6.9mΩ
- Advanced trench cell design
- Low Thermal Resistance



Schematic Diagram



TO-263 top view

Applications

- Motor drivers
- DC - DC Converter

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G060N12D	APG060N12D	TO-263	-	-	800

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_a =25℃)	I_D	100	A
Pulsed Drain Current (1,2,3)	I_{DM}	240	A
Single Pulsed Avalanche Energy (1)	E_{AS}	800	mJ
Power Dissipation	P_D	147	W
Thermal Resistance from Junction to Case(1)	$R_{\theta JC}$	0.85	℃/W
Thermal Resistance- Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

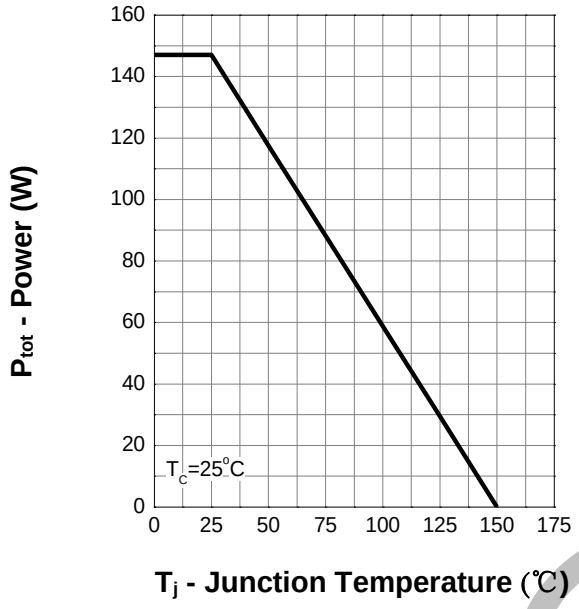
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	120	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =96V, V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	-	4.0	V
Drain-source on-resistance(2)	$R_{DS(on)}$	V_{GS} =10V, I_D =50A	-	5.5	6.0	mΩ
		V_{GS} =6V, I_D =30A		6.9	8.0	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =60V, V_{GS} =0V, f =1.0MHz	-	4903	-	pF
Output Capacitance	C_{oss}		-	566	-	
Reverse Transfer Capacitance	C_{rss}		-	47	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=60V, I_D=50A, R_G=3.9Ω	-	18	-	ns
Turn-on rise time	t_r		-	71	-	
Turn-off delay time	$t_{d(off)}$		-	51	-	
Turn-off fall time	t_f		-	79	-	
Total Gate Charge	Qg	V_{DS}=60V, I_D=50A, V_{GS}=10V	-	81	-	nC
Gate-Source Charge	Qgs		-	28	-	
Gate-Drain Charge	Qgd		-	18	-	
Source-Drain Diode characteristics						
Diode Forward voltage(2)	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=50A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	-	100	A
Body Diode Reverse Recovery Time	trr	T_J=25℃，IF=50A,di/dt=100A/us		100		ns
Body Diode Reverse Recovery Charge	Qrr	T_J=25℃，IF=50A,di/dt=100A/us		307		uc

Notes:

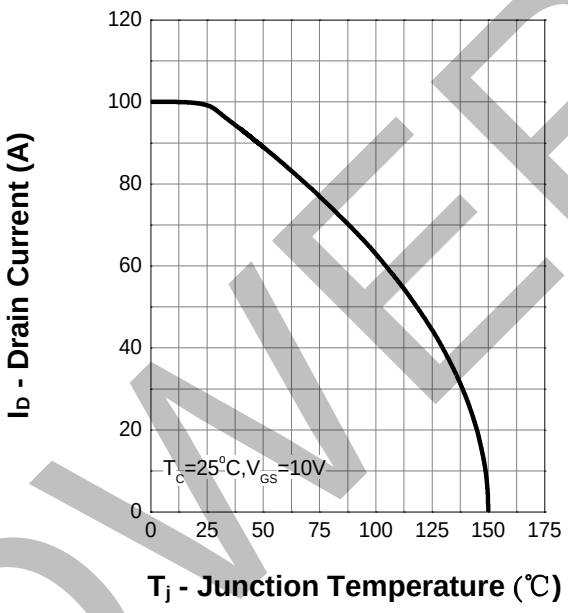
1. Surface Mounted on 1 in2 pad area, t ≤ 10 sec
2. Pulse width ≤ 300 μs, duty cycle ≤ 2 %
3. Limited by bonding wire

Typical Characteristics

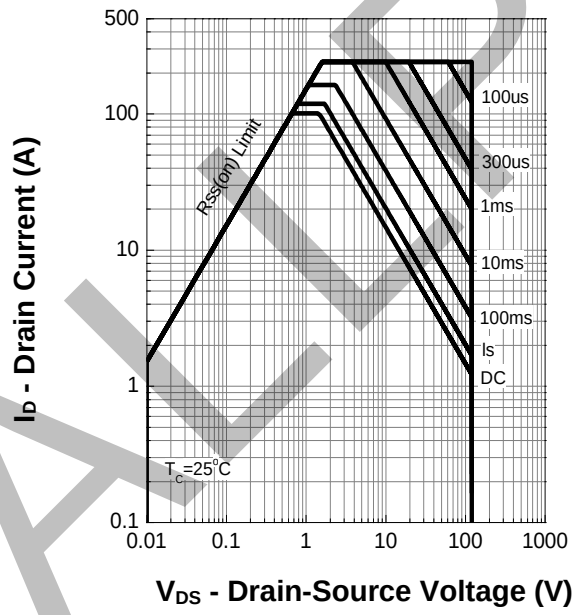
Power Capability



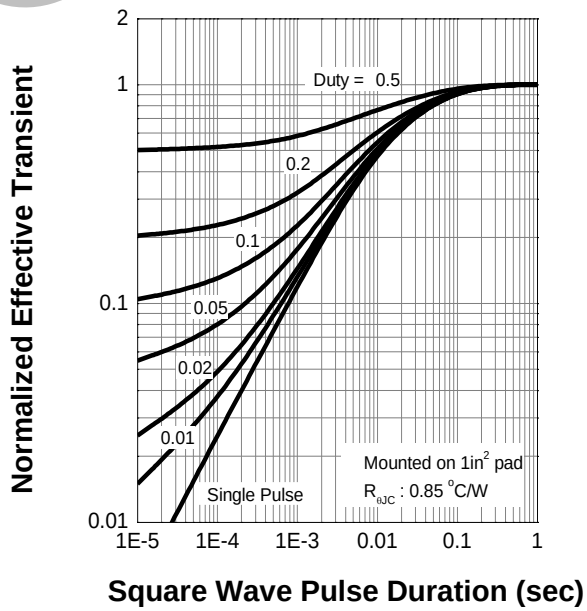
Current Capability



Safe Operation Area

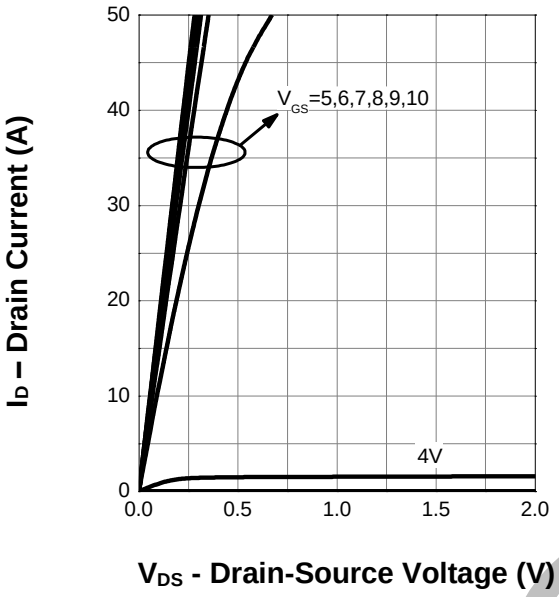


Thermal Transient Impedance

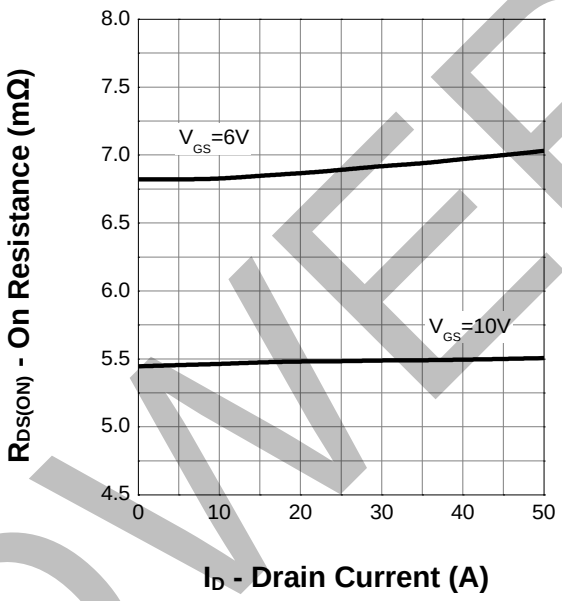


Typical Characteristics (cont.)

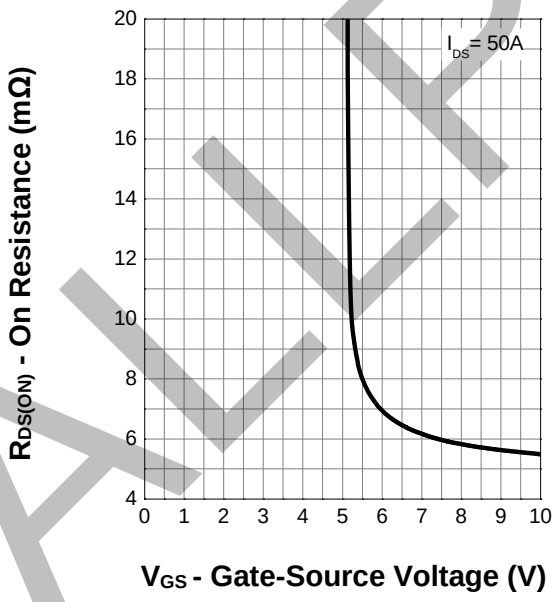
Output Characteristics



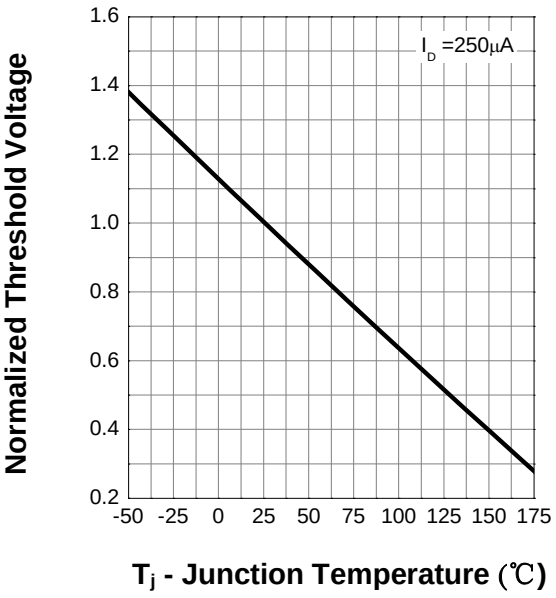
Drain-Source On Resistance



Transfer Characteristics

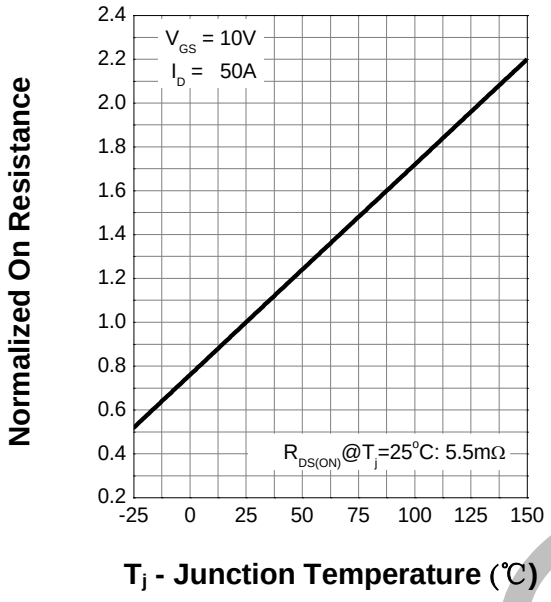


Gate Threshold Voltage

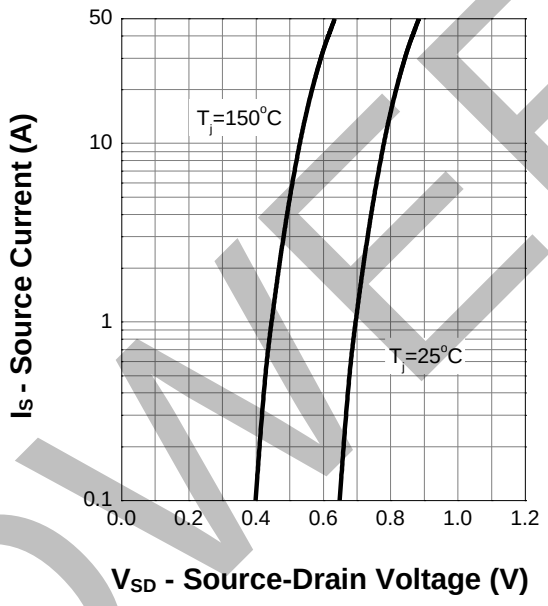


Typical Characteristics (cont.)

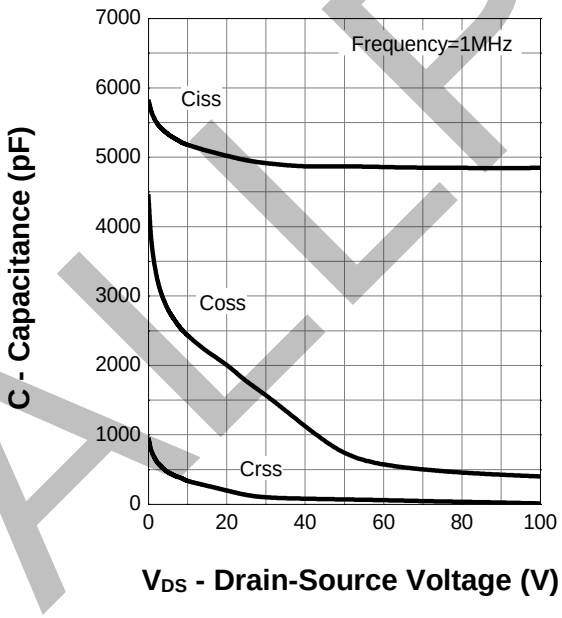
Drain-Source On Resistance



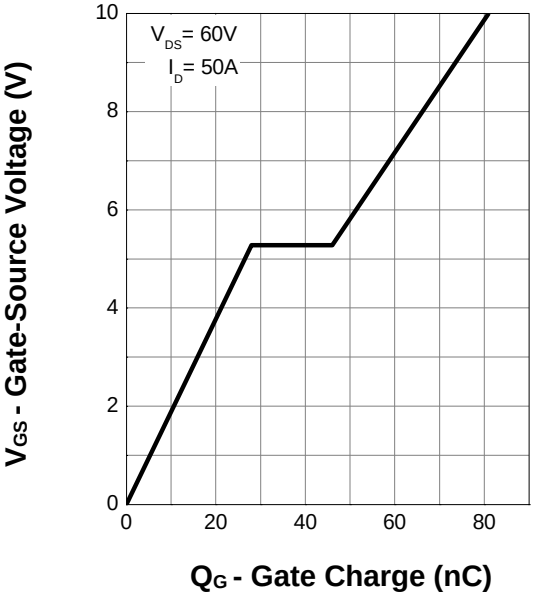
Body Diode Characteristics



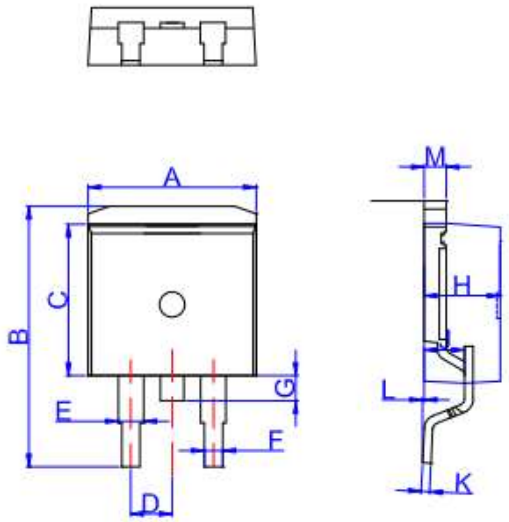
Capacitance



Gate Charge



TO-263 Package Information



TO-263

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053