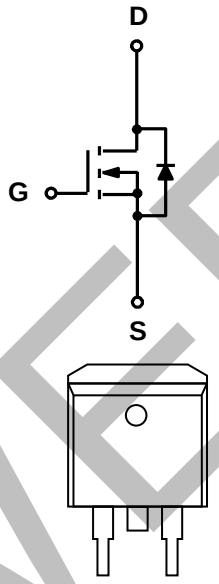
APG018N03D

N-Channel Enhancement Mosfet

ALLPOWER
DATA SHEET

Features

- 30V,200A
  $R_{DS(ON)}$ <1.8mΩ @V_{GS}=10V TYP:1.5mΩ
  $R_{DS(ON)}$ <3.0mΩ @V_{GS}=4.5V TYP:2.5mΩ
- Advanced trench cell design
- Low Thermal Resistance



TO-263

Applications

- Motor drivers
- DC - DC Converter

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G018N03D	APG018N03D	TO-263	-	-	800

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_a =25℃) (2,3)	I_D	200	A
Pulsed Drain Current (1,2,3)	I_{DM}	300	A
Single Pulsed Avalanche Energy (2)	E_{AS}	240	mJ
Drain Power Dissipation	P_D	166	W
Thermal Resistance from Junction to Case(2)	$R_{\theta JC}$	0.75	℃/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

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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	30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =24V, 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	1.5	-	2.5	V
Drain-source on-resistance[(a)]	$R_{DS(on)}$	V_{GS} =10V, I_D =20A	-	1.5	1.8	mΩ
		V_{GS} =4.5V, I_D =10A		2.5	3.0	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1.0MHz	-	10423	-	pF
Output Capacitance	C_{oss}		-	1181	-	
Reverse Transfer Capacitance	C_{rss}		-	343	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, I_D=20A, R_G=4.5Ω, R_L=0.75Ω,V_G=10V	-	33	-	ns
Turn-on rise time	t_r		-	88	-	
Turn-off delay time	$t_{d(off)}$		-	108	-	
Turn-off fall time	t_f		-	82	-	
Total Gate Charge	Qg	V_{DS}=15V, I_D=20A, V_{GS}=10V	-	160	-	nC
Gate-Source Charge	Qgs		-	45	-	
Gate-Drain Charge	Qgd		-	27	-	
Source-Drain Diode characteristics						
Diode Forward voltage[(a)]	V_{SD}	T_J=25℃, V_{GS} =0V, I_S=20A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	-	200	A
Body Diode Reverse Recovery Time	trr	T_J=25℃， IF=20A,di/dt=100A/us		45		ns
Body Diode Reverse Recovery Charge	Qrr	T_J=25℃， IF=20A,di/dt=100A/us		44		uc

Notes:

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

b) Guaranteed by design, not subject to production testing

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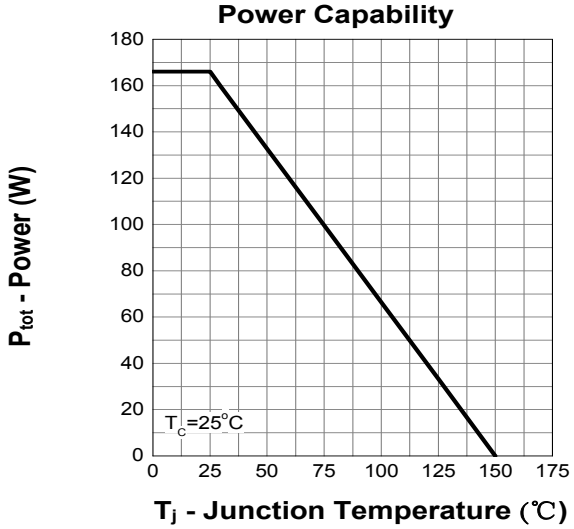
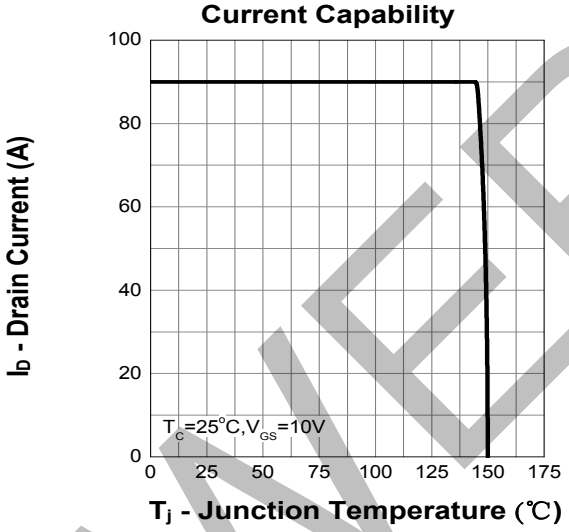
Typical Characteristics

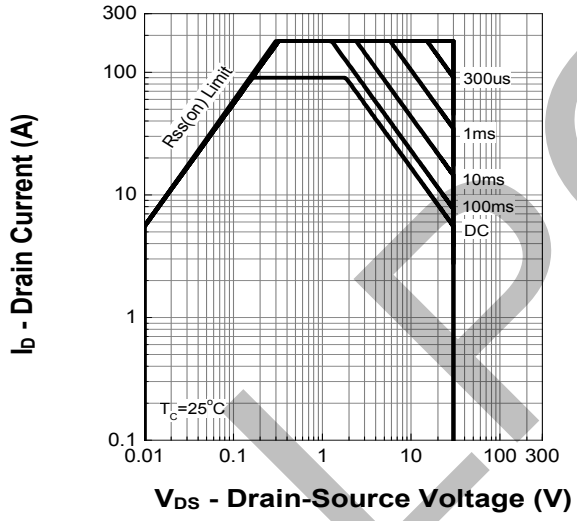
Power Capability



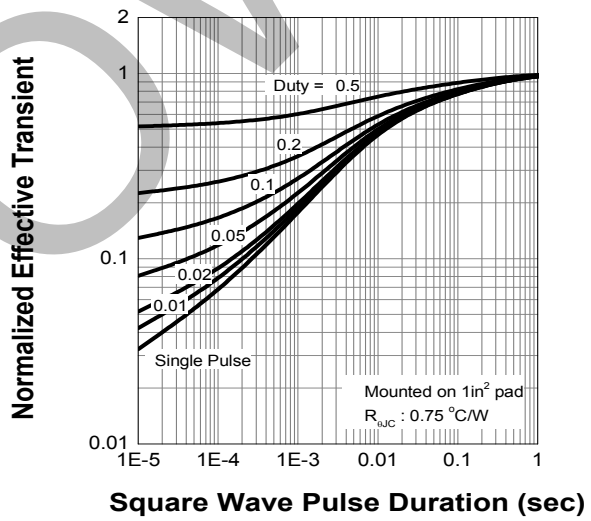
Current Capability



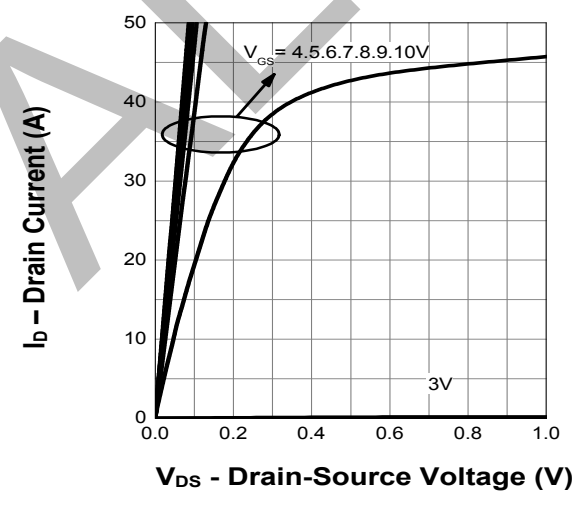
Safe Operation Area



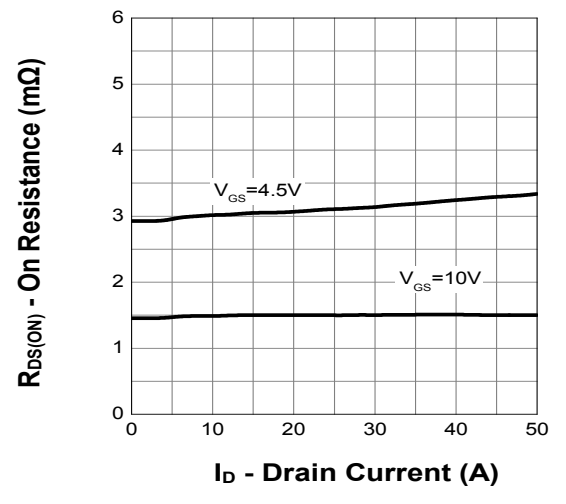
Thermal Transient Impedance



Output Characteristics



Drain-Source On Resistance



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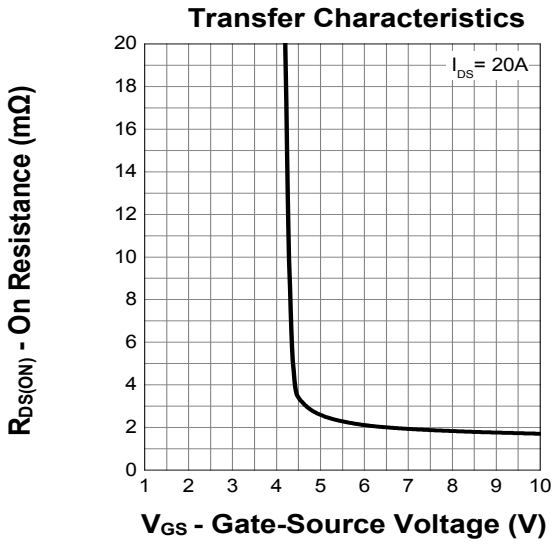
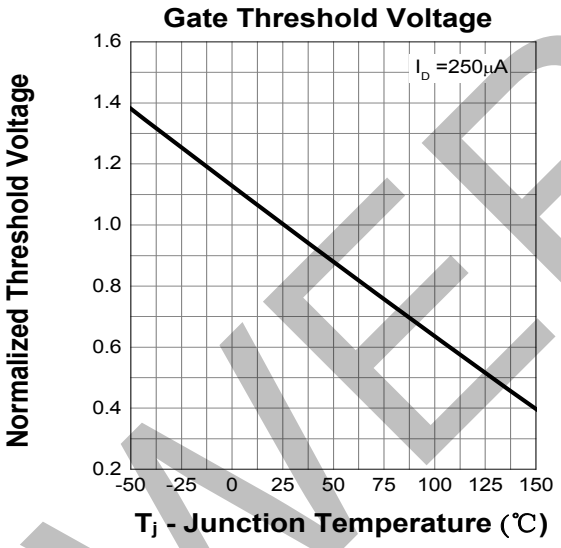
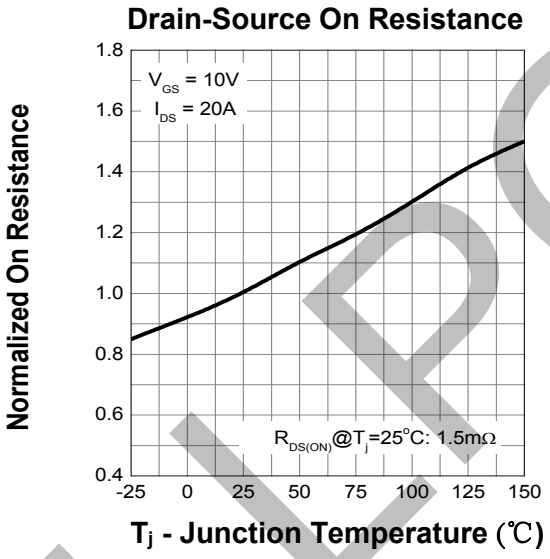
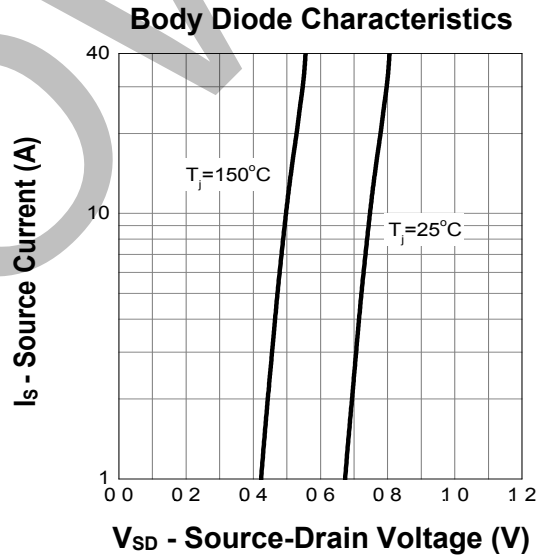
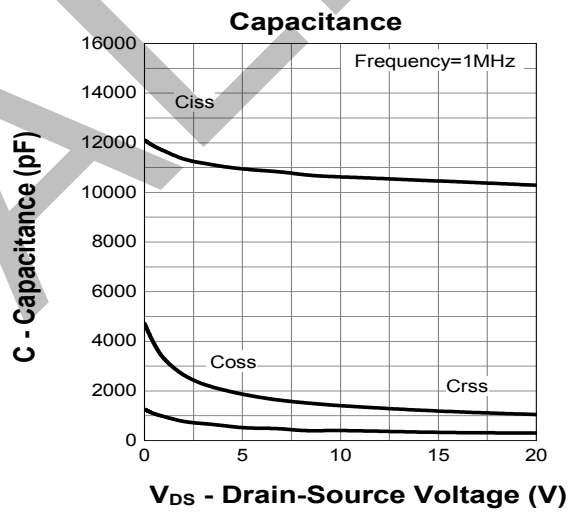
Typical Characteristics

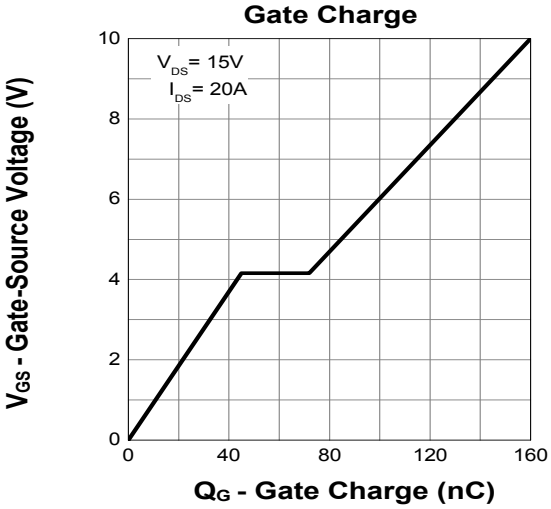












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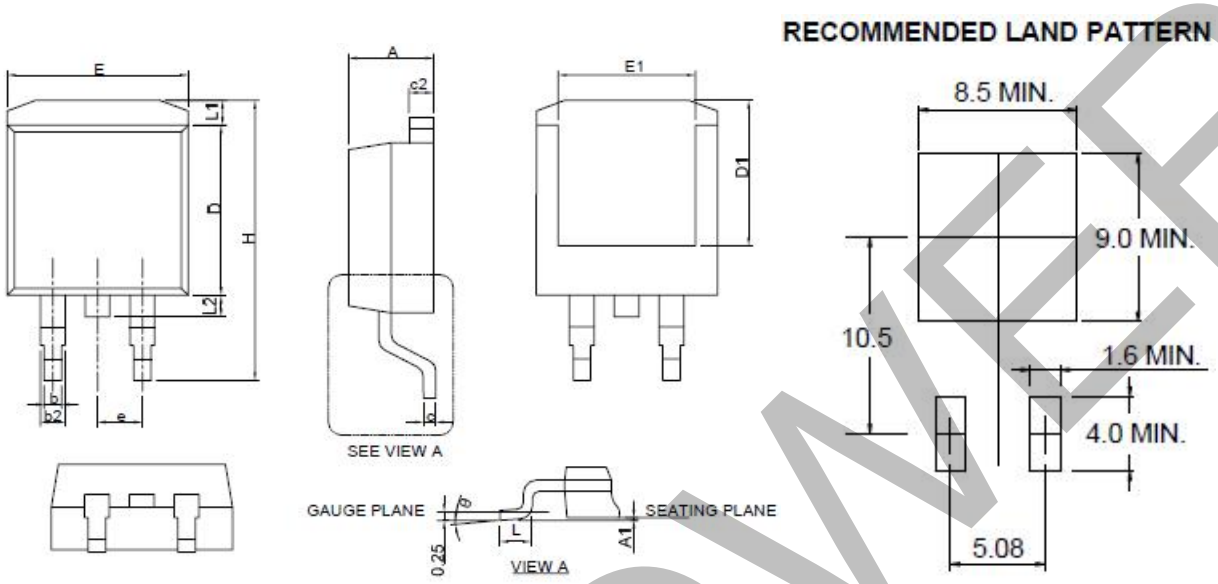
Package Dimensions

TO-263



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.06	4.83
A1	0.00	0.25
b	0.51	0.99
b2	1.14	1.78
c	0.38	0.74
c2	1.14	1.65
D	8.38	9.65
D1	6.00	9.00
E	9.65	11.43
E1	6.22	9.00
e	2.54 BCS	
H	14.61	15.88
L	1.78	2.79
L1	-	1.68
L2	-	1.78
θ	0°	8°

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