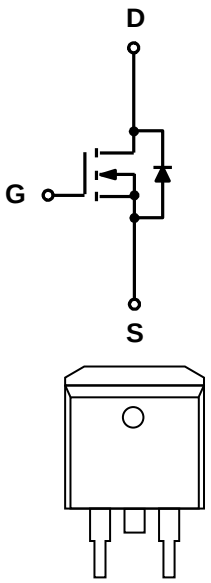
APG12N15D

N-Channel Enhancement Mosfet

DATA SHEET

Features

- 150V,80A
  $R_{DS(ON)}$ <12mΩ @V_{GS}=10V TYP:10.7 mΩ
  $R_{DS(ON)}$ <15mΩ @V_{GS}=6V TYP:11.8mΩ
- Surface-mounted package
- Super Trench



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Applications

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

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G12N15D	APG12N15D	TO-263	-	-	800

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current (T_C =25℃) (1,3)	I_D	80	A
Continuous Drain Current (T_C=100℃) (1,3)	I_D	46	A
Pulsed Drain Current (1,2,3)	I_{DM}	240	A
Single Pulsed Avalanche Energy （V_{DD}=50V, L=1.0mH）	E_{AS}	684	mJ
Drain Power Dissipation	P_D	156	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 minimum footprint pad area.
3. Limited by bonding wire

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

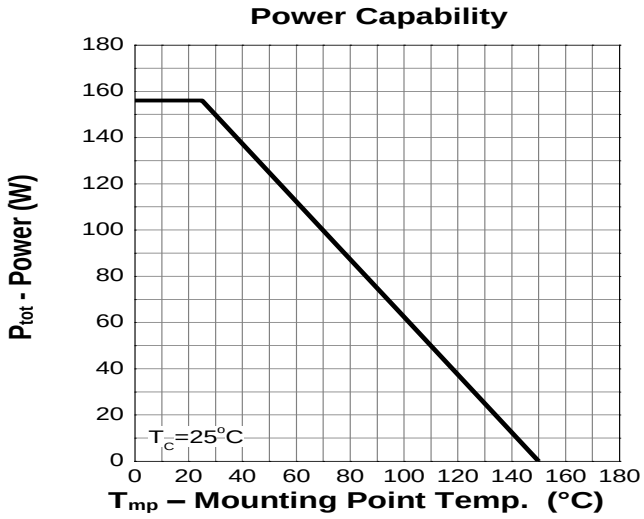
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =120V, V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±25V, V_{DS} = 0V	-	-	±100	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	-	10.7	12	mΩ
		V_{GS}=6V, ID=20A	-	11.8	15	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =75V, V_{GS} =0V, f =1.0MHz	-	4756	-	pF
Output Capacitance	C_{oss}		-	318	-	
Reverse Transfer Capacitance	C_{rss}		-	65	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=75V, I_D=30A, R_G=3.9Ω, V_G=10V	-	19	-	ns
Turn-on rise time	t_r		-	69	-	
Turn-off delay time	$t_{d(off)}$		-	55	-	
Turn-off fall time	t_f		-	80	-	
Total Gate Charge	Qg	V_{DS}=75V, I_D=30A, V_{GS}=10V	-	81	-	nC
Gate-Source Charge	Qgs		-	21	-	
Gate-Drain Charge	Qgd		-	17	-	
Source-Drain Diode characteristics						
Diode Forward voltage[a]	V_{SD}	T_C=25℃, V_{GS} =0V, I_S=30A	-	-	1.3	V
Diode Forward current	I_S	T_C=25℃	-	-	80	A
Body Diode Reverse Recovery Time	trr	T_C=25℃，IF=30A,di/dt=100A/us		96		ns
Body Diode Reverse Recovery Charge	Qrr	T_C=25℃，IF=30A,di/dt=100A/us		355		nc

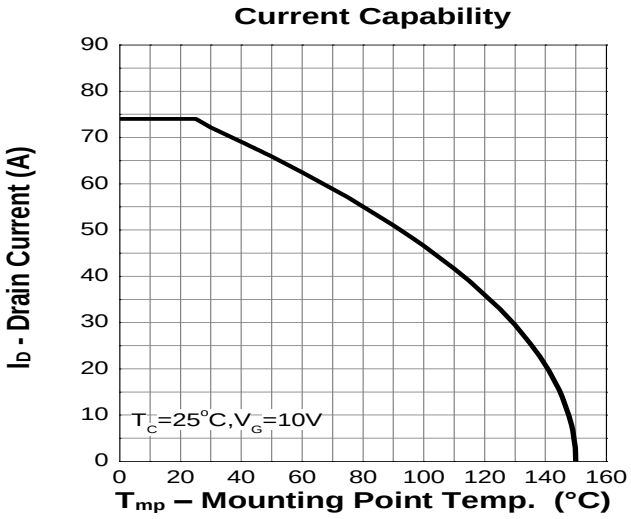
Notes:

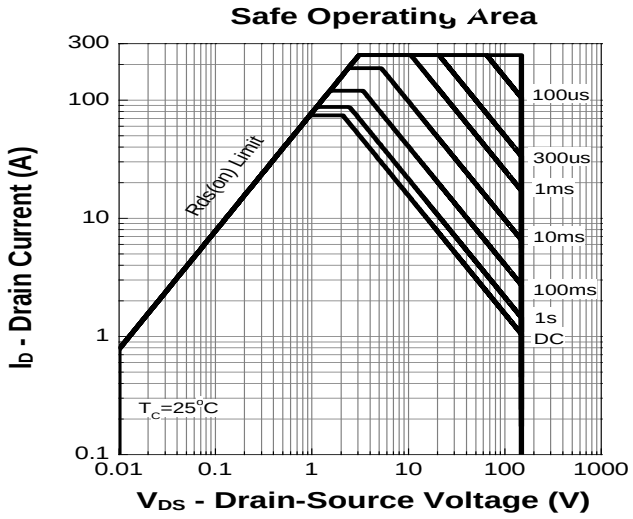
a) : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%

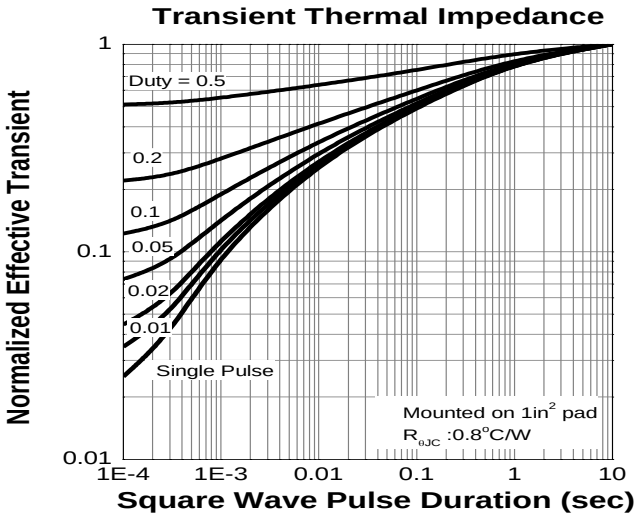
b) : Guaranteed by design, not subject to production testing

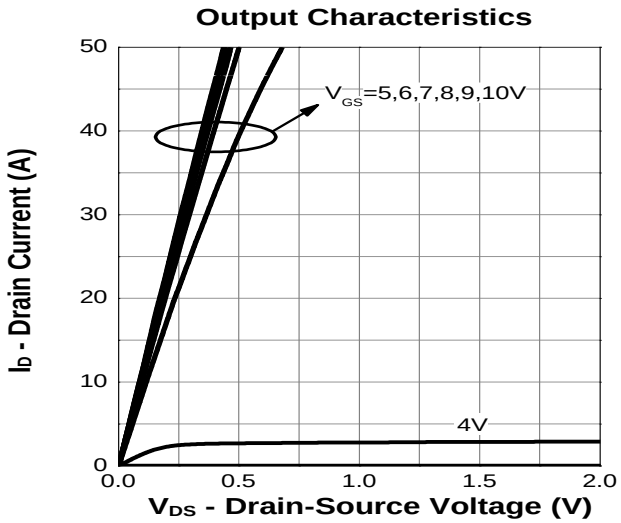
Typical Characteristics (cont.)

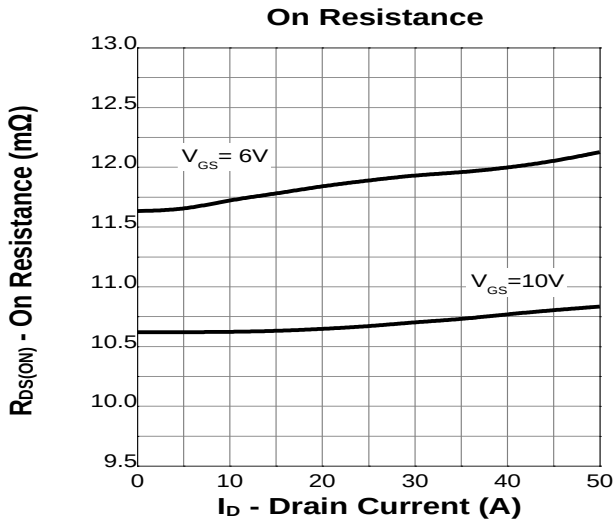




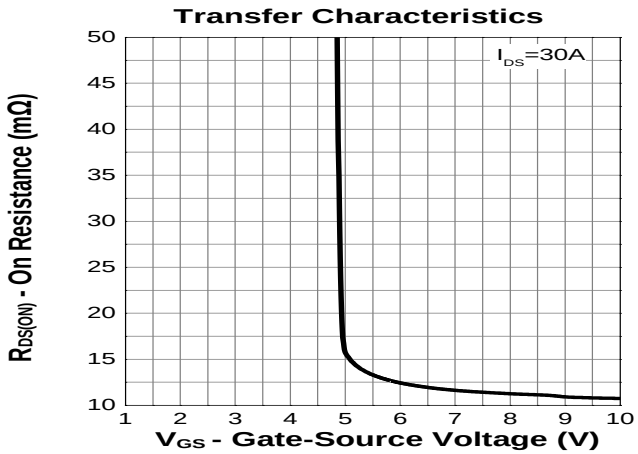


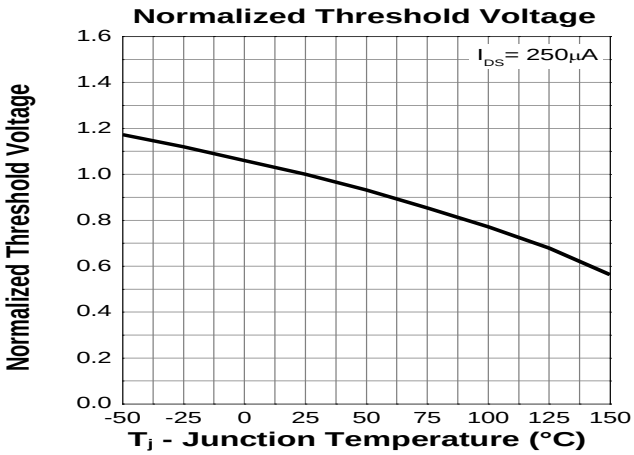


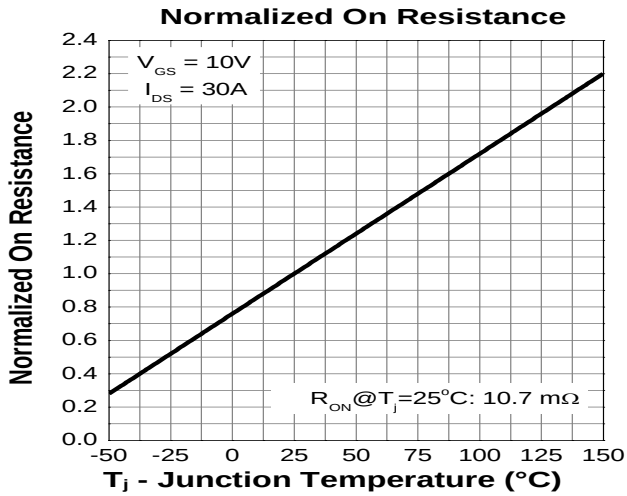


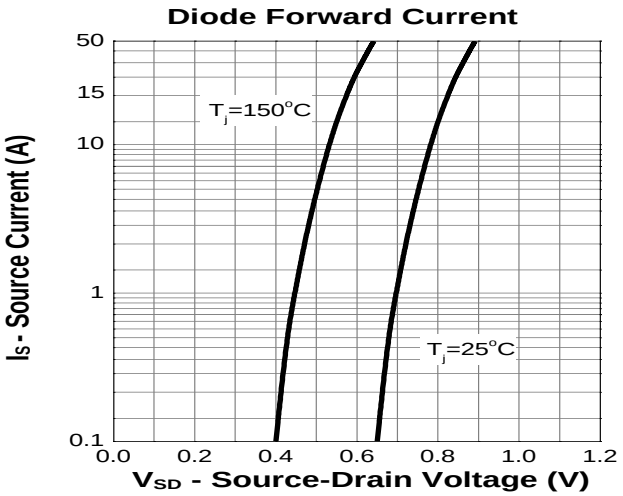


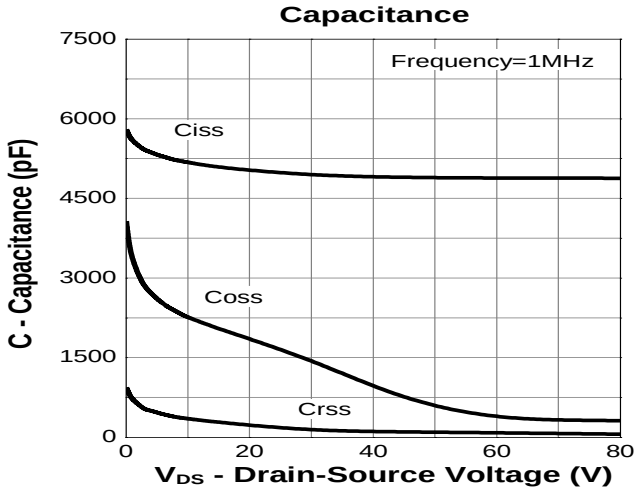
Typical Characteristics (cont.)

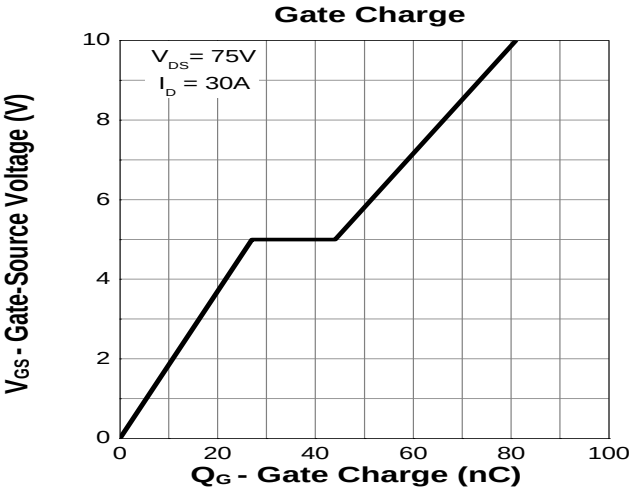












Package Dimensions

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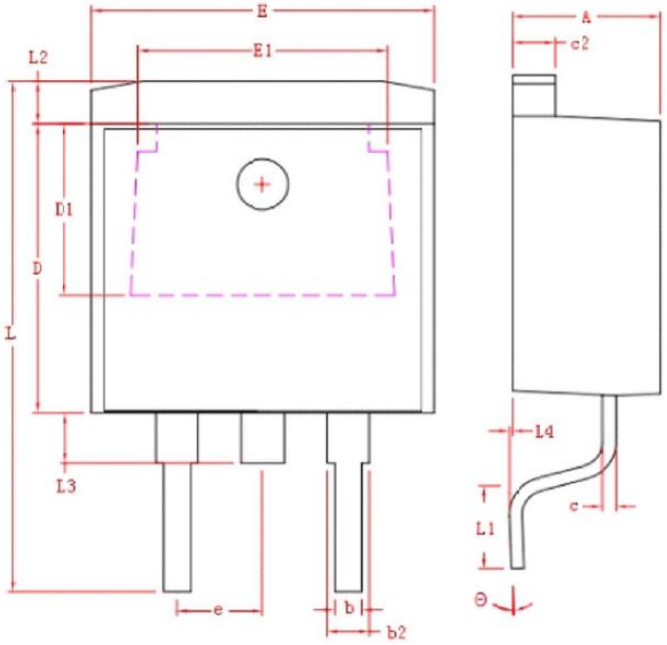

Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.40	4.80
b	0.76	1.00
L4	0.00	0.25
C	0.36	0.50
L3	1.50 REF	
L1	2.29	2.79
E	9.80	10.40
E1	7.40 REF	
c2	1.25	1.45
b2	1.17	1.47
D	8.60	9.00
D1	5.10 REF	
e	2.54 REF	
L	14.6	15.8
θ	$0^\circ \pm 3^\circ$	
L2	1.27 REF	