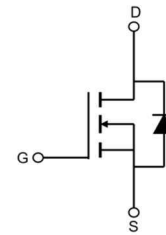


Features

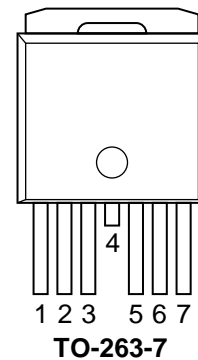
- 120V,300A
 $R_{DS(on)} < 2.0m\ \Omega @ V_{GS}=10V$ TYP:1.6m Ω
 $R_{DS(on)} < 2.5m\ \Omega @ V_{GS}=6V$ TYP:2.2m Ω
- Surface-mounted package
- Super Trench
- MSL1
- Tj max 175°C

Applications

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



Schematic Diagram



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G020N12D7	APG020N12D7	TO-263-7	-	-	800

ABSOLUTE MAXIMUM RATINGS (T_J=25°C 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 _C =25°C)	I _D	300	A
Continuous Drain Current (T _C =25°C)	I _D	210	A
Pulsed Drain Current ^(1,2,3)	I _{DM}	400	A
Single Pulsed Avalanche Energy ⁽¹⁾	E _{AS}	1000	mJ
Power Dissipation	P _D	500	W
Thermal Resistance from Junction to Case ⁽¹⁾	R _{θJC}	0.25	°C/W
Thermal Resistance- Junction to Ambient	R _{θJA}	38	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

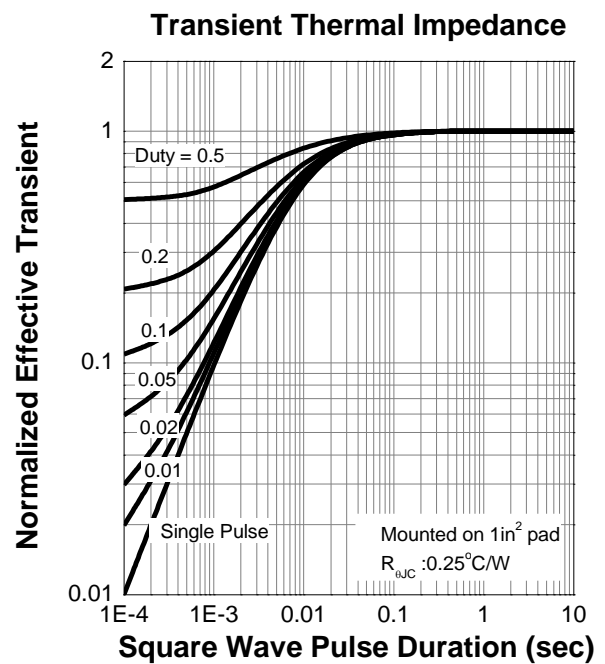
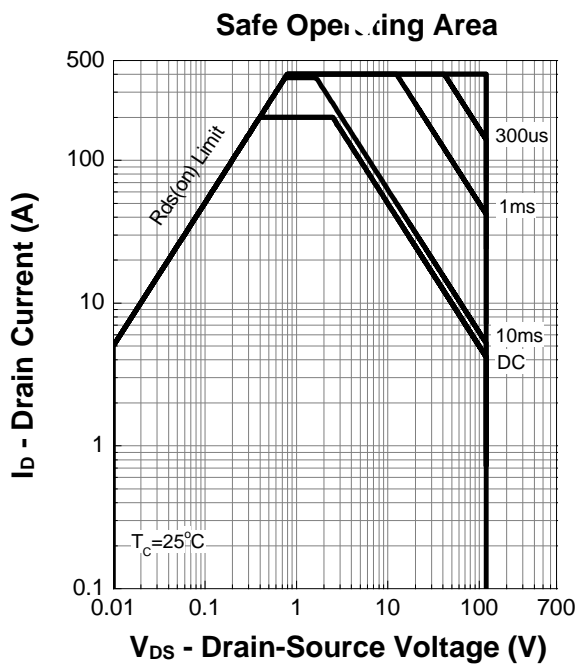
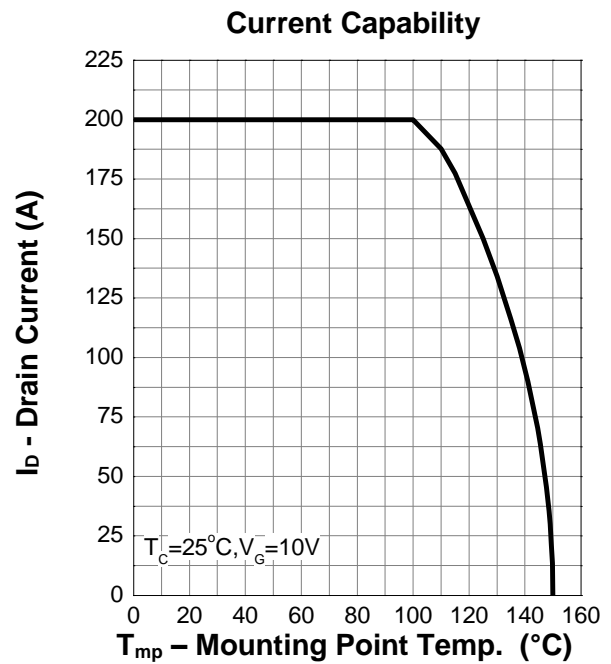
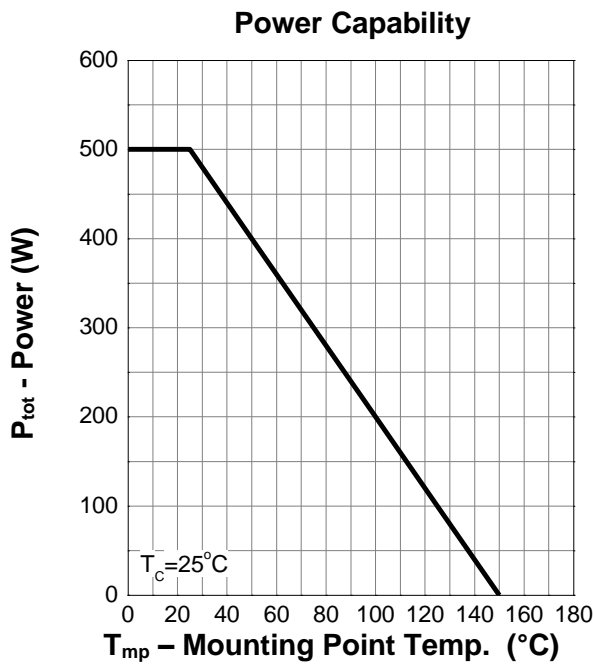
MOSFET ELECTRICAL CHARACTERISTICS(T_J=25°C unless otherwise noted)

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 =60A	-	1.6	2.0	mΩ
		V _{GS} =6V, I _D =30A		2.2	2.5	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =60V, V _{GS} =0V, f =1.0MHz	-	13540	-	pF
Output Capacitance	C _{oss}		-	1164	-	
Reverse Transfer Capacitance	C _{rss}		-	164	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =60V, I _D =50A, R _G =3.9Ω	-	43	-	ns
Turn-on rise time	t _r		-	112	-	
Turn-off delay time	t _{d(off)}		-	136	-	
Turn-off fall time	t _f		-	87	-	
Total Gate Charge	Q _g	V _{DS} =60V, I _D =50A, V _{GS} =10V	-	237	-	nC
Gate-Source Charge	Q _{gs}		-	82	-	
Gate-Drain Charge	Q _{gd}		-	61	-	
Source-Drain Diode characteristics						
Diode Forward voltage ⁽²⁾	V _{SD}	T _J =25°C, V _{GS} =0V, I _S =50A	-	-	1.3	V
Diode Forward current	I _S	T _C =25°C	-	-	300	A
Body Diode Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =50A, di/dt=100A/us		116		ns
Body Diode Reverse Recovery Charge	Q _{rr}	T _J =25°C, I _F =50A, di/dt=100A/us		355		uc

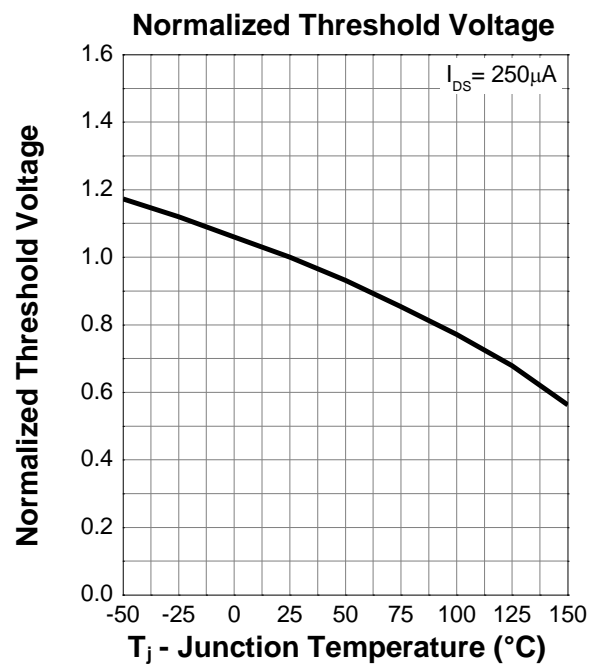
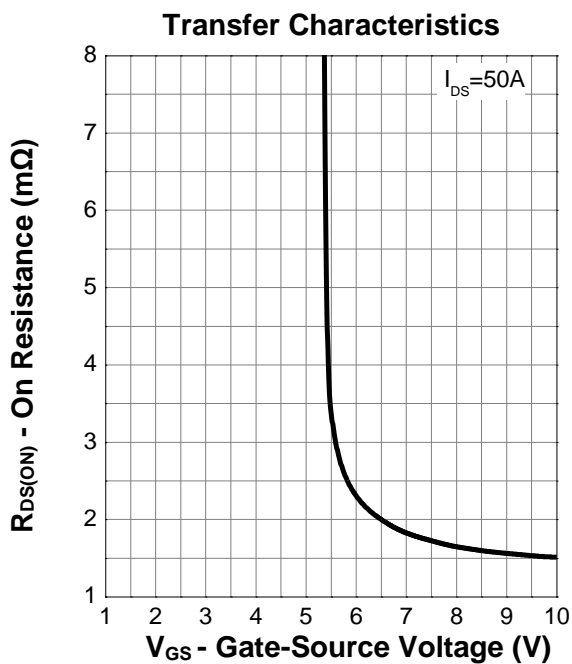
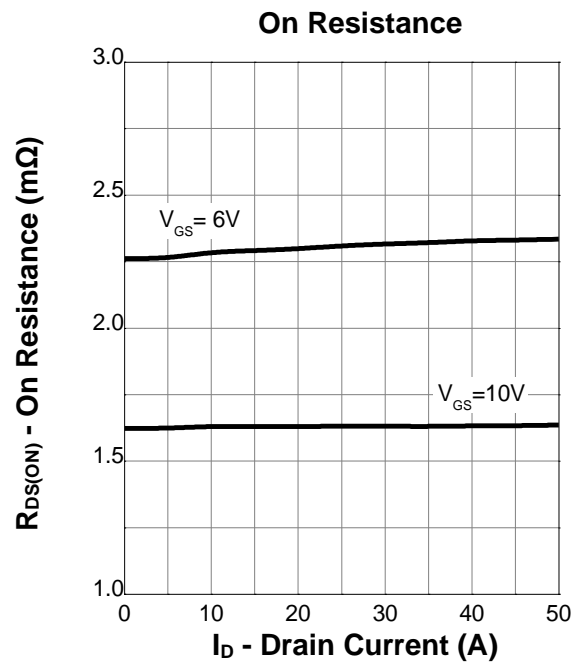
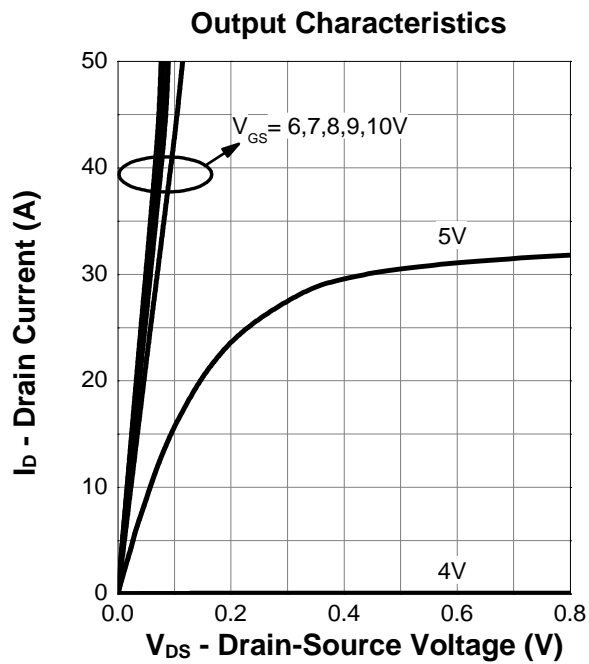
Notes:

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

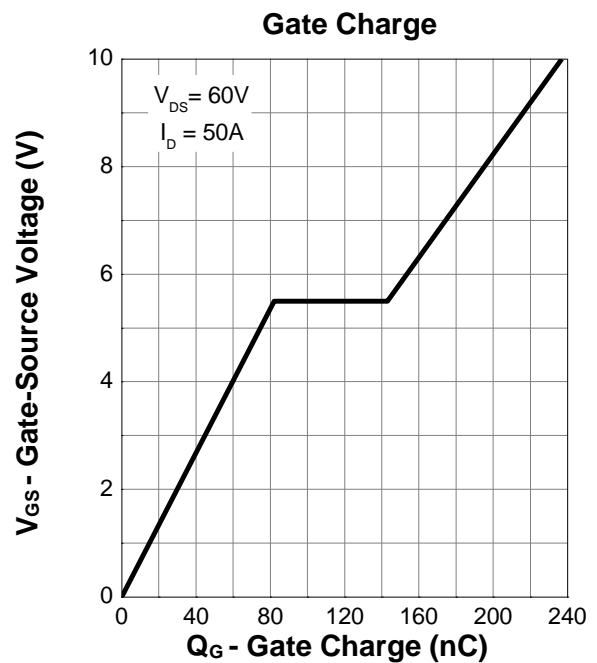
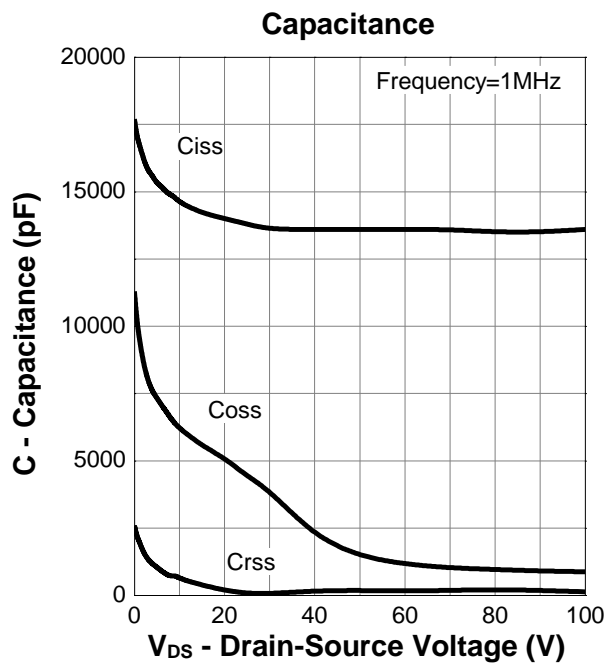
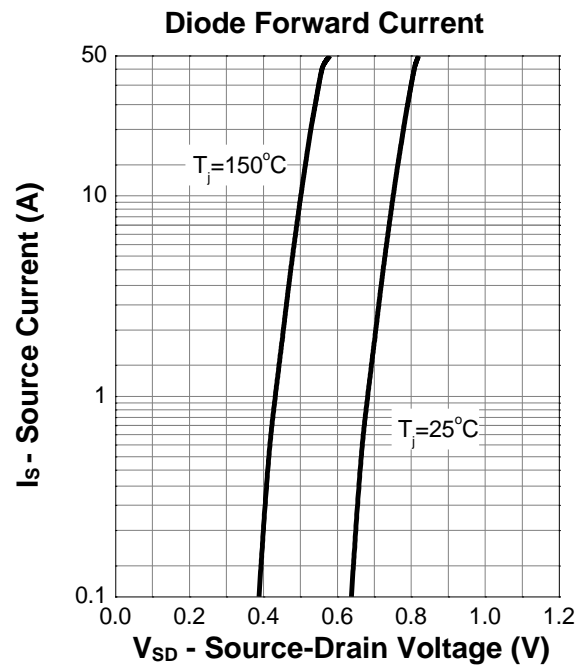
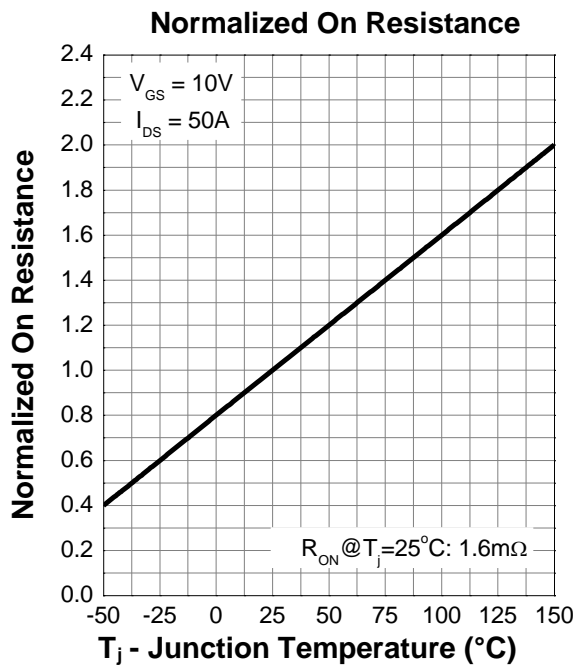
Typical Characteristics



Typical Characteristics

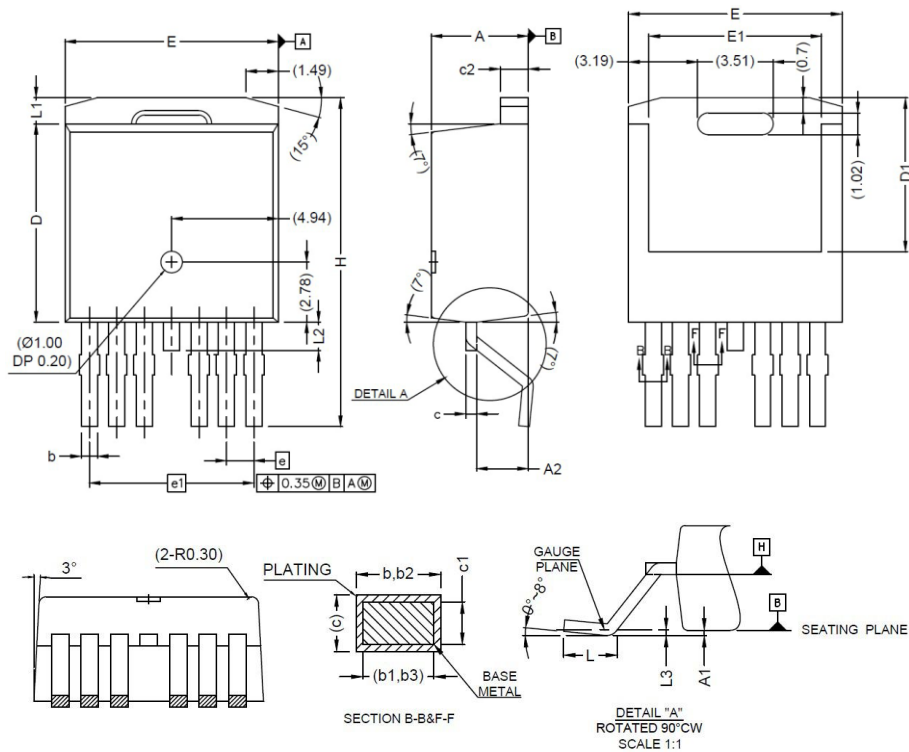


Typical Characteristics



Package Dimensions

TO-263-7



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	4.30	4.70
A1	-	0.25
A2	2.20	2.60
b	0.65	0.85
b1	0.65	0.80
b2	0.80	1.00
b3	0.80	0.95
c	0.45	0.60
c1	0.45	0.55
c2	1.25	1.40
D	9.00	9.40
D1	6.86	7.42
E	9.68	10.08
E1	7.70	8.30
e	1.27 BSC	
e1	7.62 BSC	
L	1.78	2.79
L1	-	1.60
L2	-	1.78
L3	0.25 BSD	
H	14.61	15.88