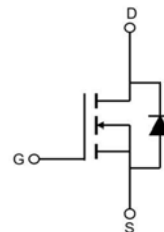


TPG006N04D7

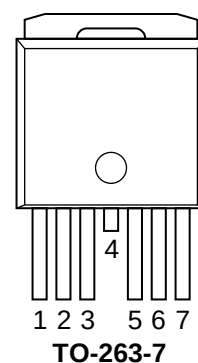
N-Channel Enhancement Mosfet

Features

- 40V,400A
 $R_{DS(ON)} < 0.6m\Omega @ V_{GS}=10V$ TYP:0.5m Ω
 $R_{DS(ON)} < 1.22m\Omega @ V_{GS}=4.5V$ TYP:0.95m Ω
- Surface-mounted package
- Super Trench
- MSL1
- Tj max 175°C



Schematic Diagram



Applications

- BMS appliances
- Drones
- High power inverter system
- Light electric vehicles

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
G006N04D7	TPG006N04D7	TO-263-7	-	-	800

ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C) ^(2,3)	I _D	400	A
Continuous Drain Current (T _C =100°C) ^(2,3)	I _D	280	A
Pulsed Drain Current ^(1,3)	I _{DM}	2320	A
Single Pulsed Avalanche Energy (V _{DD} =40V,L=1.0mH)	E _{AS}	1568	mJ
Drain Power Dissipation	P _D	330	W
Thermal Resistance from Junction to Case ⁽¹⁾	R _{θJC}	0.45	°C/W
Thermal Resistance- Junction to Ambient ⁽¹⁾	R _{θJA}	32	°C/W
Junction Temperature	T _J	175	°C
Storage Temperature	T _{STG}	-55~ +175	°C

Notes:

1. Pulse width ≤ 300 μs, duty cycle ≤ 2 %
2. Surface Mounted on minimum footprint pad area.
3. Limited by bonding wire

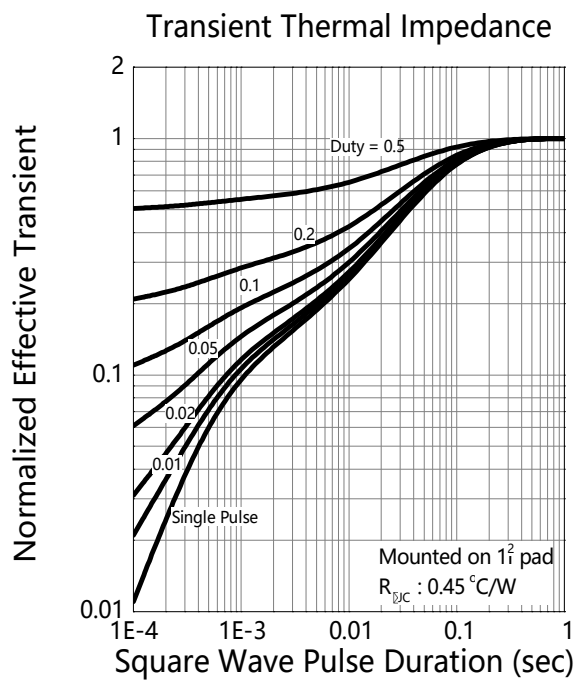
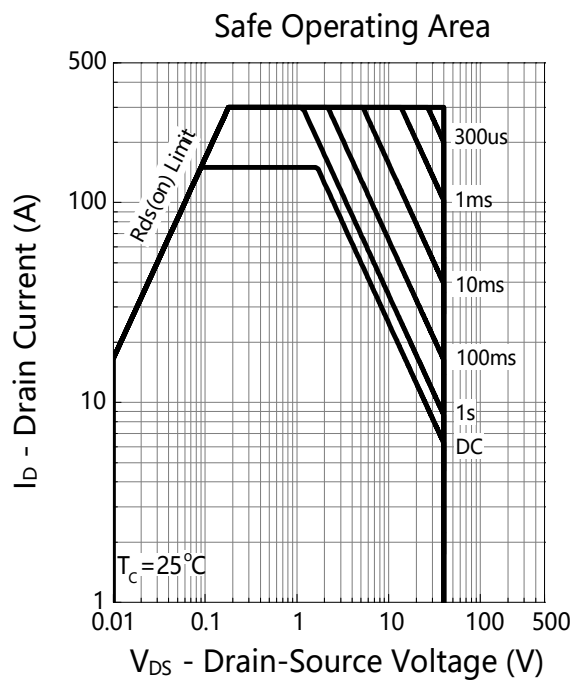
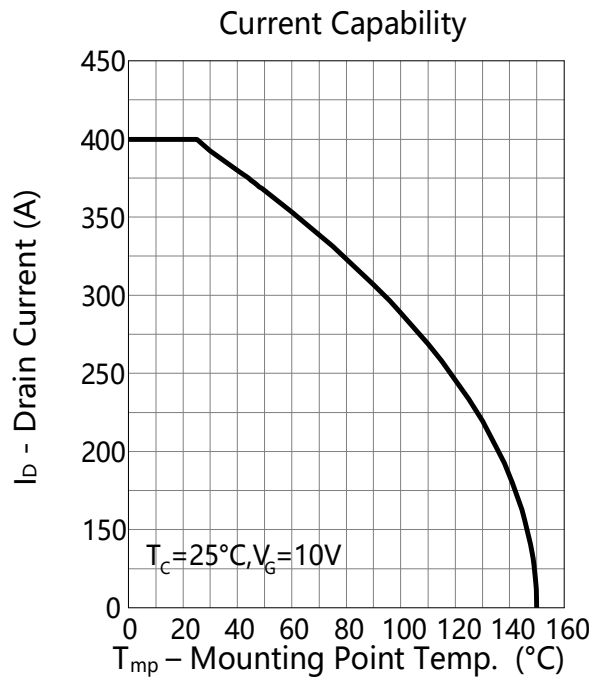
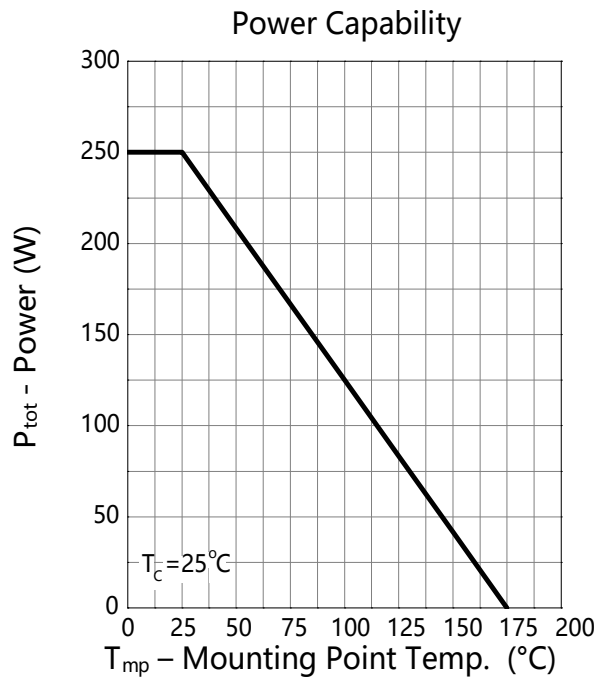
MOSFET ELECTRICAL CHARACTERISTICS($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	40	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =32V, 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	1.0	-	2.5	V
Drain-source on-resistance ^(a)	R _{DS(on)}	V _{GS} =10V, I _D =50A	-	0.5	0.6	mΩ
		V _{GS} =4.5V, I _D =20A		0.95	1.22	mΩ
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f =1.0MHz	-	8296	-	pF
Output Capacitance	C _{oss}		-	3294	-	
Reverse Transfer Capacitance	C _{rss}		-	55	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =20V, I _D =20A, R _G =4.5Ω, R _L =0.4Ω,V _G =10V	-	31	-	ns
Turn-on rise time	t _r		-	117	-	
Turn-off delay time	t _{d(off)}		-	180	-	
Turn-off fall time	t _f		-	125	-	
Total Gate Charge	Q _g	V _{DS} =20V, I _D =50A, V _{GS} =10V	-	232	-	nC
Gate-Source Charge	Q _{gs}		-	60	-	
Gate-Drain Charge	Q _{gd}		-	34	-	
Source-Drain Diode characteristics						
Diode Forward voltage ^(a)	V _{SD}	T _C =25℃, V _{GS} =0V, I _S =50A	-	-	1.3	V
Diode Forward current	I _S	T _C =25℃	-	-	400	A
Body Diode Reverse Recovery Time	trr	T _C =25℃ , IF=50A,di/dt=100A/us		24		ns
Body Diode Reverse Recovery Charge	Qrr	T _C =25℃ , IF=50A,di/dt=100A/us		16		nc

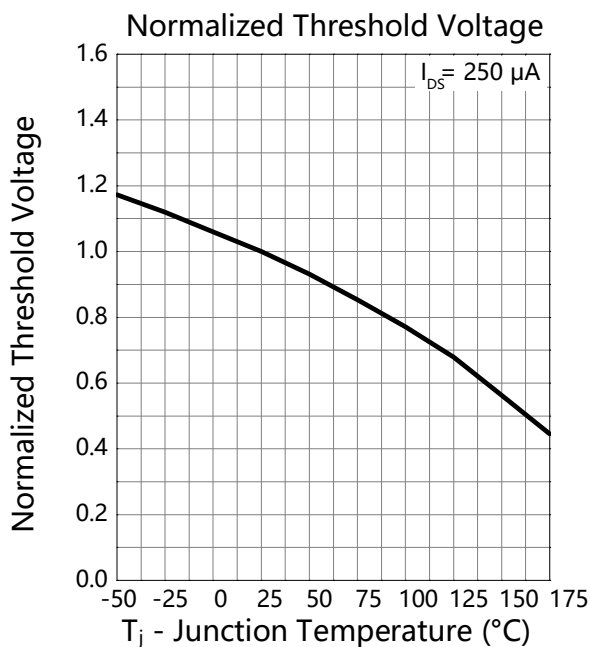
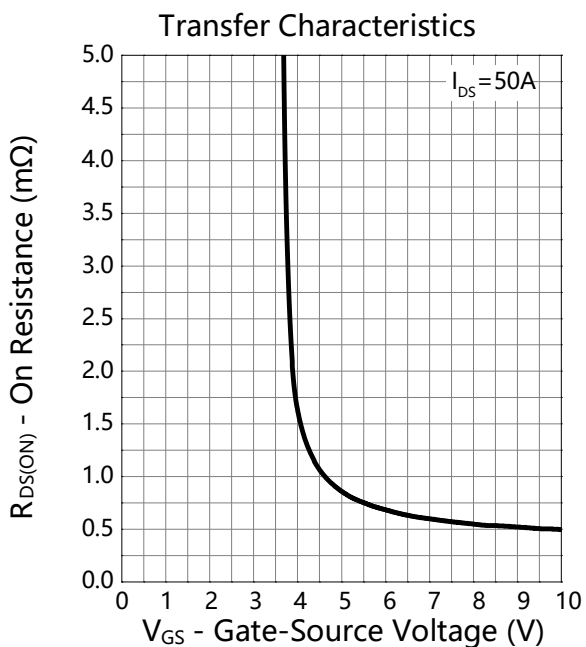
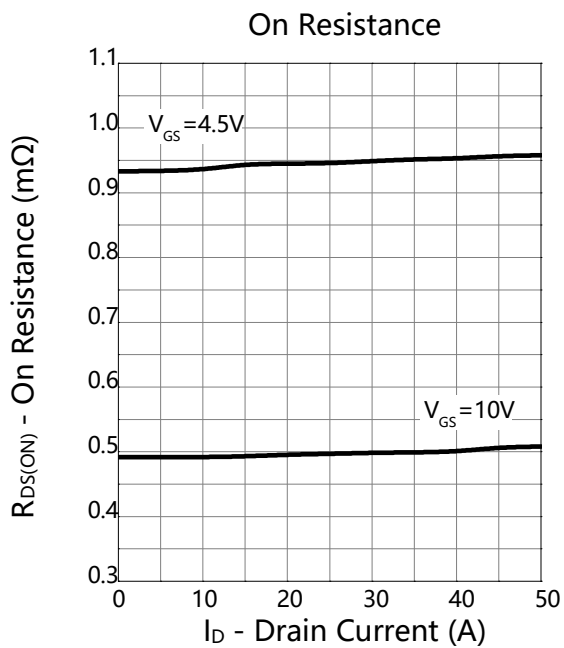
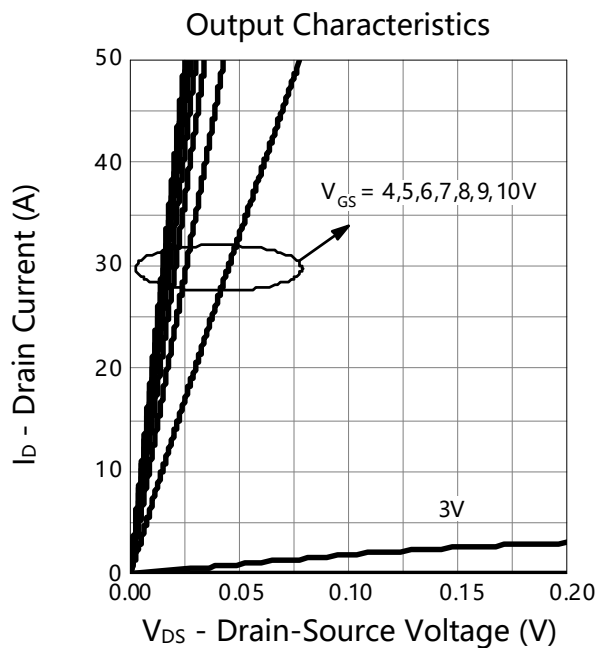
Notes:

- a) Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- b) Guaranteed by design, not subject to production testing

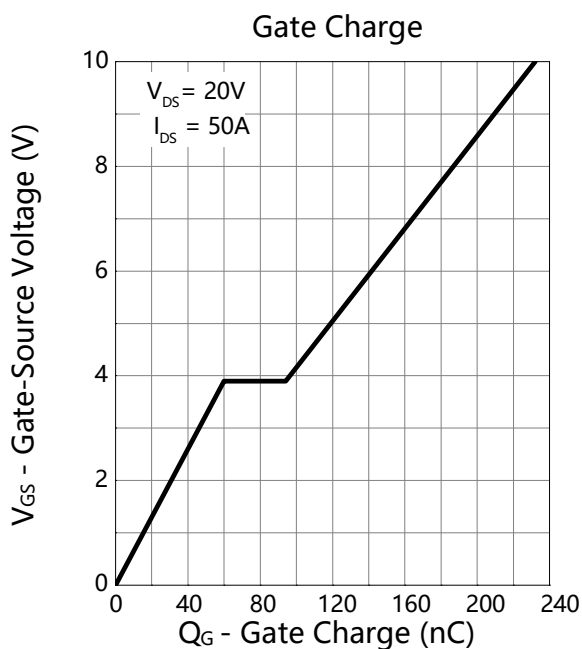
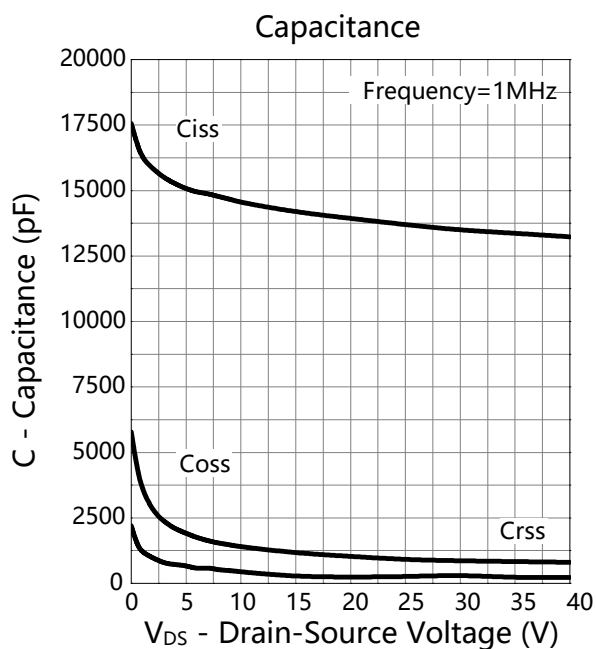
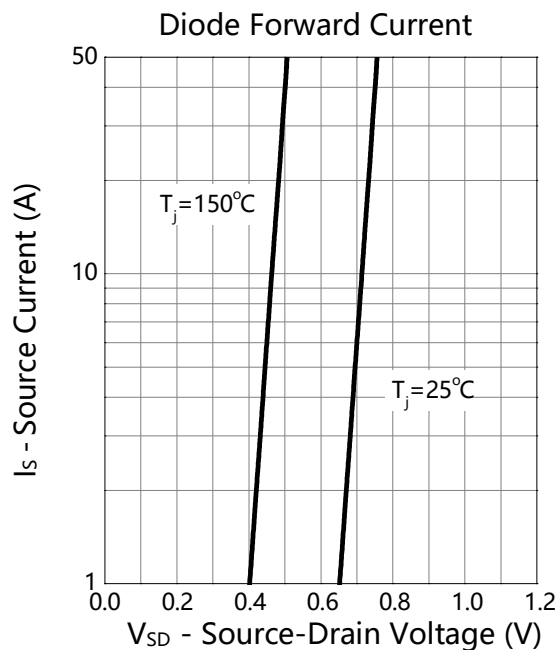
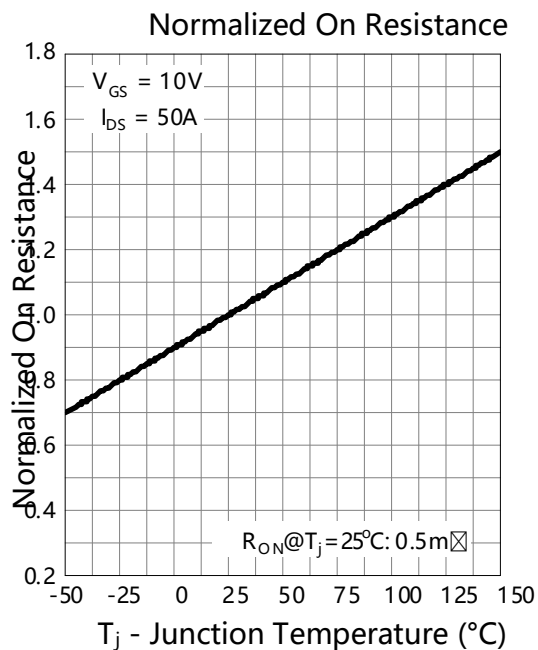
Typical Characteristics



Typical Characteristics

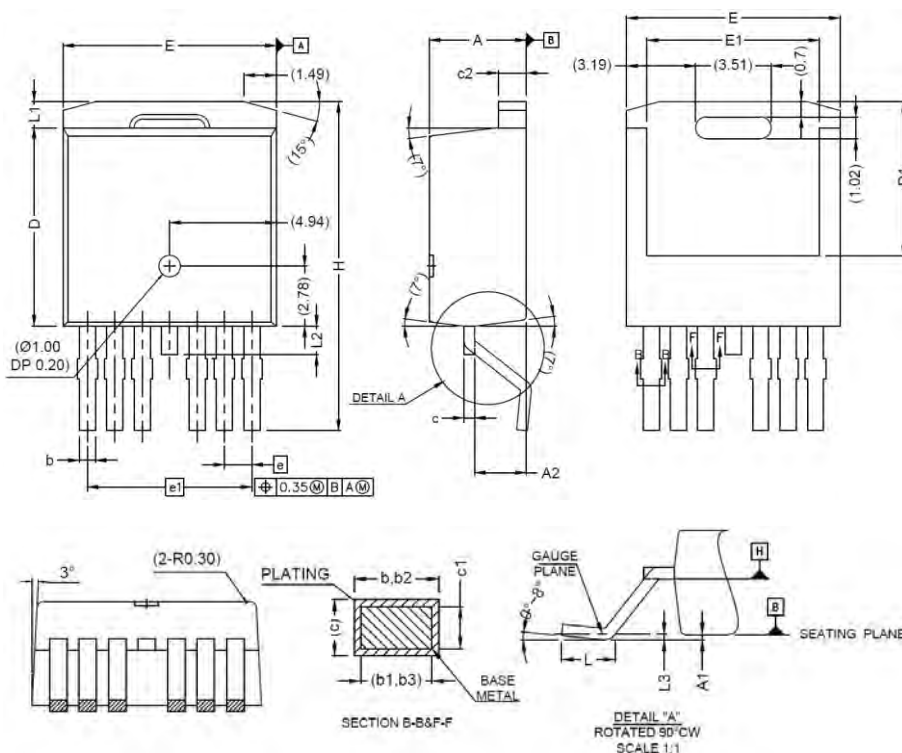


Typical Characteristics



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