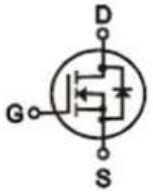
• General Description

It combines planar MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. It is suitable for automotive application.

• Product Summary



V_{DS}= 60V
$R_{DS(ON)}$ = 2.6mΩ
I_D= 205A

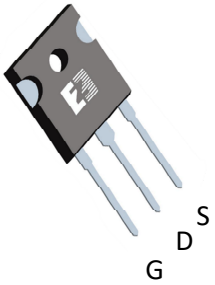
• Features

■AEC-Q101 Qualified

■Low $R_{DS(ON)}$ to minimize conductive loss

■Low Gate Charge for fast switching

■Low Thermal resistance



TO-247

•Application

■BLDC Motor driver

■DC-DC

■Load Switch

•Ordering Information:

Part NO.	ZMPA026N06C
Marking	ZMP026N06
Packing Information	BULK TUBE
Basic ordering unit (pcs)	400

•Absolute Maximum Ratings (T_C=25℃)

Parameter	Symbol	Conditions	Value	Unit
Drain-Source Voltage	V_{DS}		60	V
Gate-Source Voltage	V_{GS}		±20	V
Continuous Drain Current	I_D	T_C=25℃	205	A
	I_D	T_C=75℃	167	A
	I_D	T_C=100℃	145	A
Pulsed Drain Current ①	I_{DM}	Pulsed; t_p ≤ 10 μs; T_{mb} = 25 °C;	820	A
Total Power Dissipation	P_D	T_C=25℃	375	W
Total Power Dissipation	P_D	T_A=25℃	2.4	W
Operating Junction Temperature	T_J		-55 to +175	℃
Storage Temperature	T_{STG}		-55 to +175	℃
Single Pulse Avalanche Energy	E_{AS}	L=0.1mH, VGS=10V, Rg=25Ω,	361	mJ
		L=0.5mH, VGS=10V, Rg=25Ω,	650	mJ
ESD Level (HBM)	CLASS 2			

●Thermal resistance

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}		-	0.4	°C/W
Thermal resistance, junction-ambient	$R_{thJA①}$		-	62	°C/W
Soldering temperature（total time<10s)	Tsold		-	260	°C

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D =250uA	60			V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} =V_{DS}, I_D =250uA	1.2	1.8	2.5	V
Drain-Source Leakage Current	I_{DSS}	V_{GS}=0V, V_{DS}= 60V			1.0	uA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS} = 0V			100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D= 20A		2.6	3.3	mΩ
		V_{GS}=4.5V, I_D= 20A		3.5	4.6	mΩ
Forward Transconductance	g_{FS}	V_{GS} =5V, I_{SD} = 10A		142		S
Diode Forward Voltage	V_{FSD}	V_{GS} =0V, I_{SD} = 20A			1.3	V

●Dynamic characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input capacitance	Ciss	f = 1MHz, V_{DS}=25V	-	9431	-	pF
Output capacitance	Coss		-	2262	-	
Reverse transfer capacitance	Crss		-	715	-	
Gate Risistance	Rg	f = 1MHz	-	1.6		Ω
Total gate charge	Qg	V_{DD} = 15V, I_D = 20A, V_{GS} = 10V	-	296	-	nC
Gate - Source charge	Qgs		-	27	-	
Gate - Drain charge	Qgd		-	80	-	
Turn-ON Delay time	$t_{D(on)}$	V_{GS}=10V,V_{DS}=15V, R_G =3.3Ω, I_D =20A	-	17	-	ns
Turn-ON Rise time	t_r		-	80	-	ns
Turn-Off Delay time	$t_{D(off)}$		-	52	-	ns
Turn-Off Fall time	t_f		-	81	-	ns
Reverse Recovery Time	t_{rr}	V_{DD}=20V, dI_S/dt = 100A/us, I_S=20A	-	30	-	ns
Reverse Recovery Charge	Q_{rr}		-	40	-	nC

Fig.1 Gate-Charge Characteristics

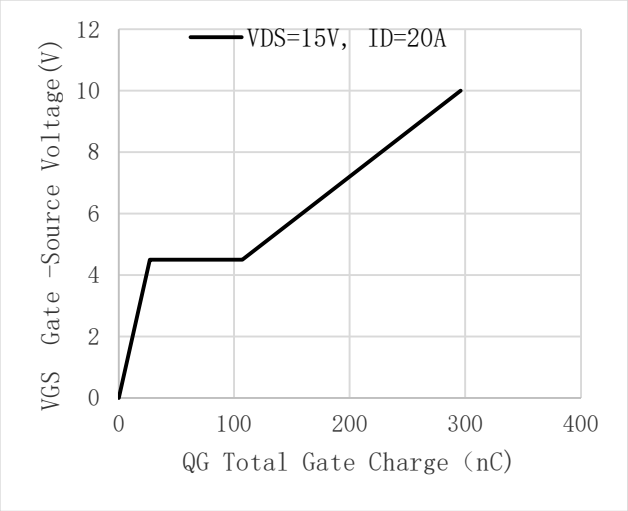


Fig.2 Capacitance Characteristics

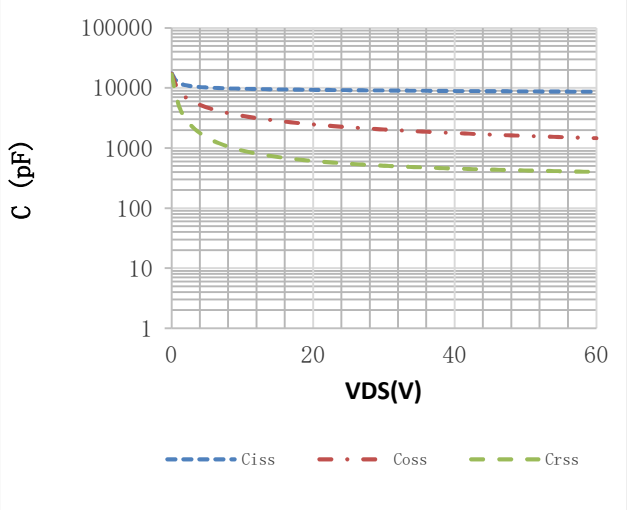


Fig.3 Power Dissipation

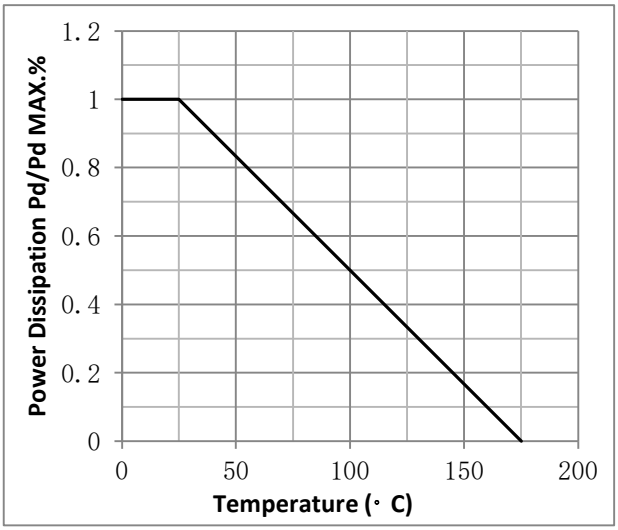


Fig.4 Typical output Characteristics

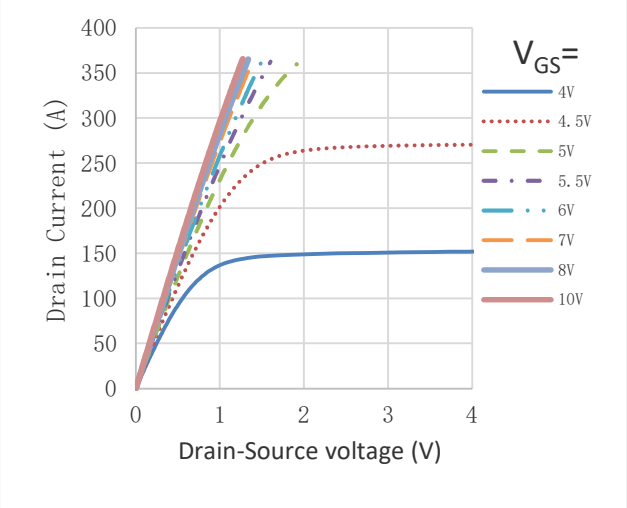


Fig.5 Threshold Voltage V.S Junction Temperature

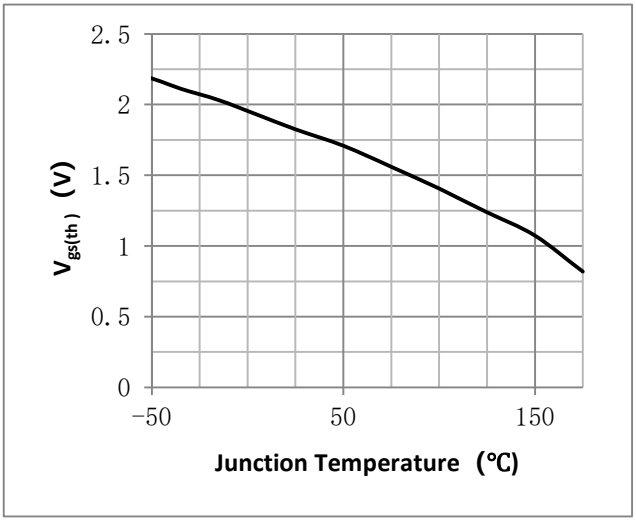


Fig.6 Resistance V.S Drain Current

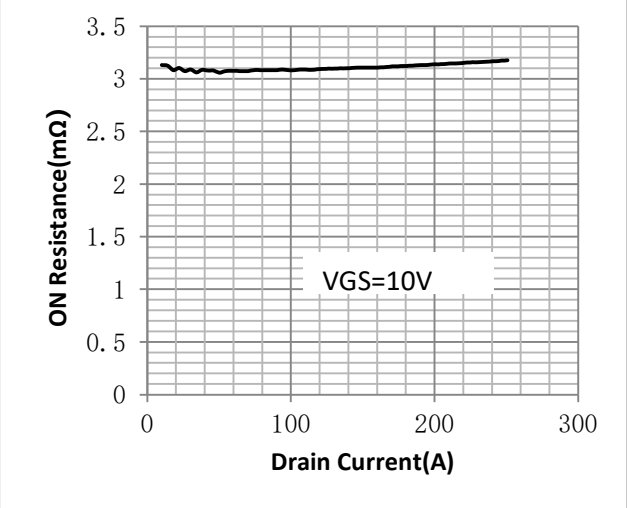


Fig.7 On-Resistance VS Gate Source Voltage

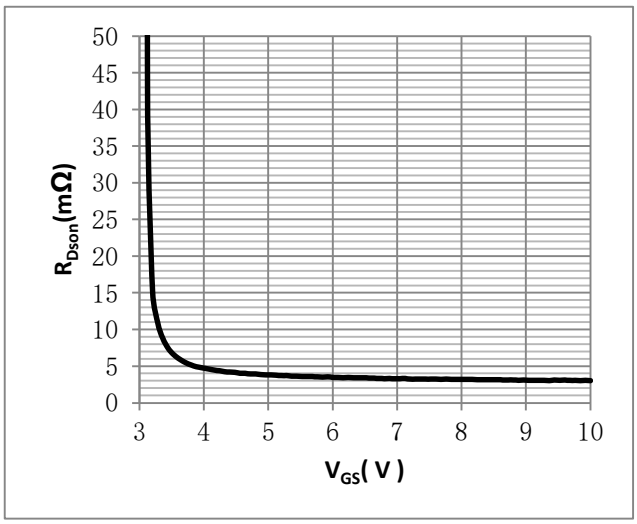


Fig.8 On-Resistance V.S Junction Temperature

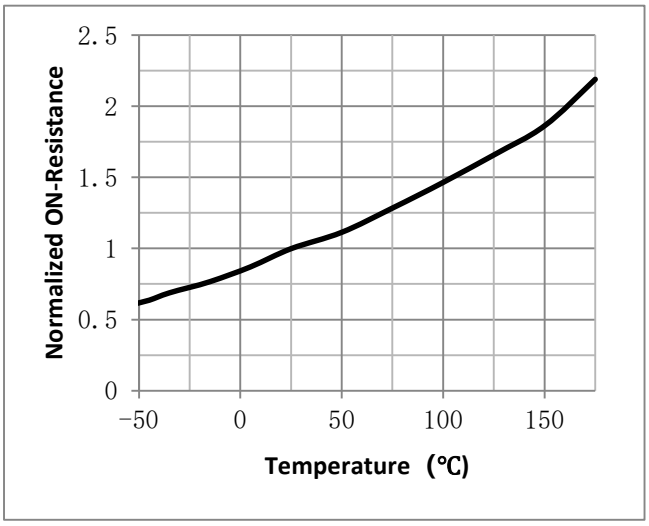


Figure 9. Diode Forward Voltage vs. Current

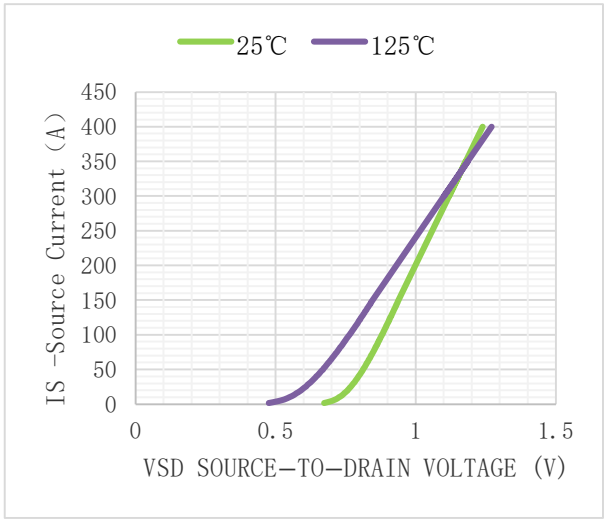


Figure 10. Transfer Characteristics

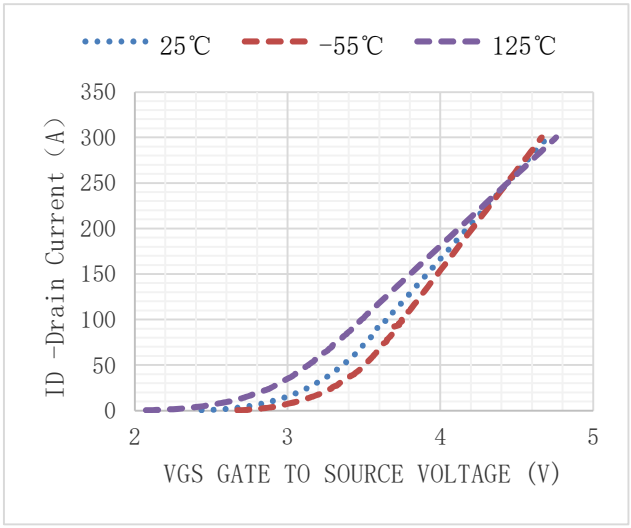


Fig.11 SOA Maximum Safe Operating Area

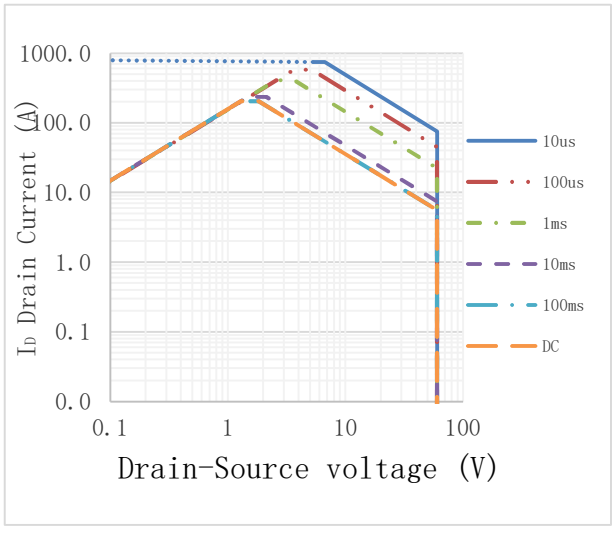
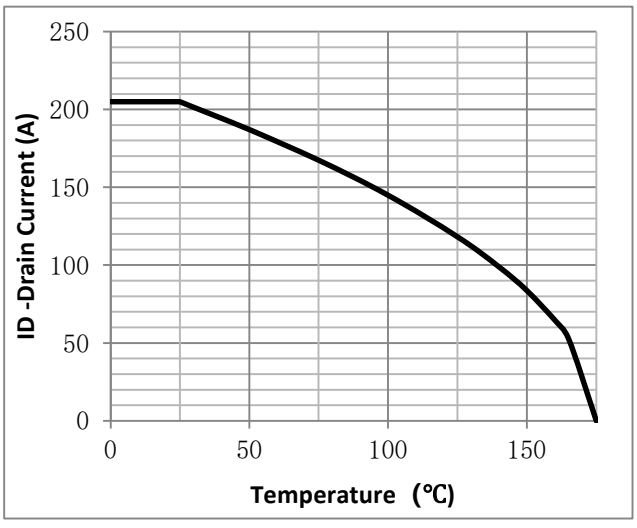
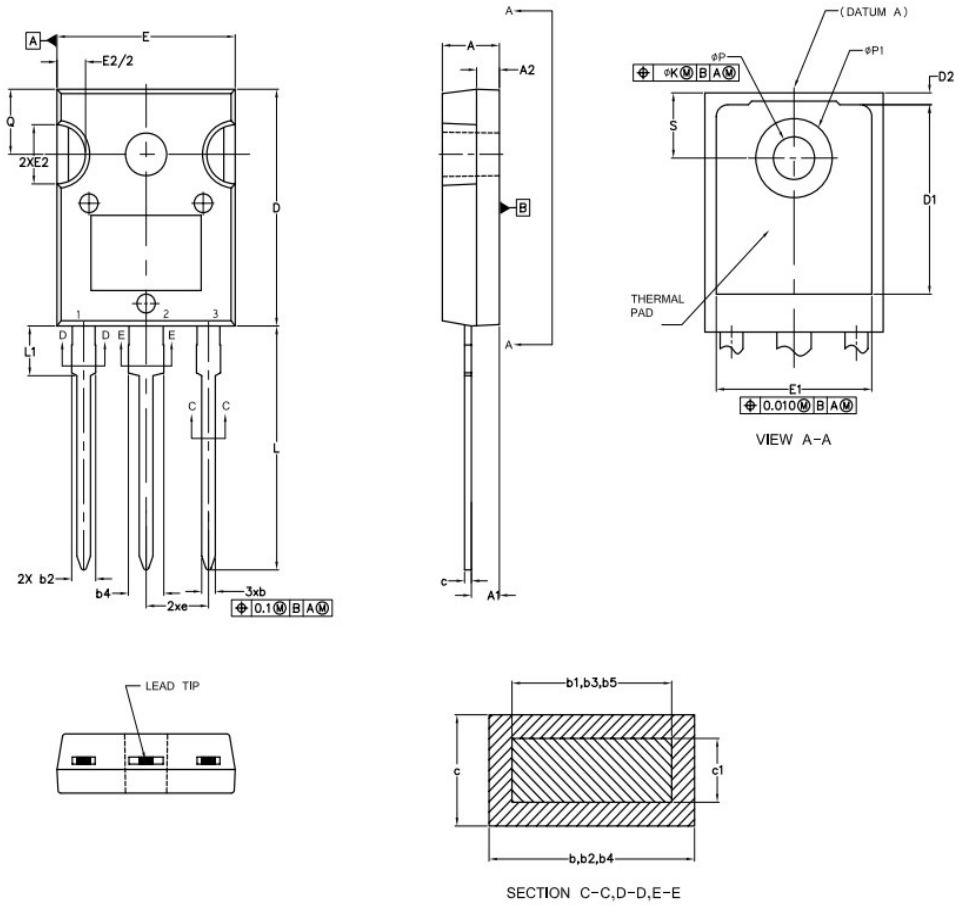


Fig.12 ID vs. Junction Temperature②



●TO-247 Package Outline



SYMBOLS	DIMENSIONS			
	mm		inch	
	MIN.	MAX.	MIN.	MAX.
A	4.83	5.13	0.190	0.20
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b1	0.99	1.35	0.039	0.053
b2	1.65	2.39	0.065	0.094
b3	1.65	2.34	0.065	0.092
b4	2.59	3.43	0.102	0.135
b5	2.59	3.38	0.102	0.133
c	0.38	0.89	0.015	0.035
c1	0.38	0.84	0.015	0.033
D	19.71	20.70	0.776	0.815
D1	13.08	——	0.515	——
D2	0.51	1.35	0.020	0.053
E	15.29	15.87	0.602	0.625
E1	13.46	——	0.530	——
E2	4.52	5.49	0.178	0.216
e	5.46BSC		0.215BSC	
L	19.57	21.00	0.780	0.827
L1	3.71	4.29	0.146	0.169
øP	3.56	3.66	0.140	0.144
øP1	——	7.39	——	0.291
Q	5.31	5.69	0.209	0.224
S	5.51BSC		0.217BSC	

Note:

① Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate；

②Practically the current will be limited by PCB, thermal design and operating temperature. V_{GS}=10V.

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Revision History

Version	Date	Change
A	2024/8/15	New
B	2025/5/24	Correct POD