

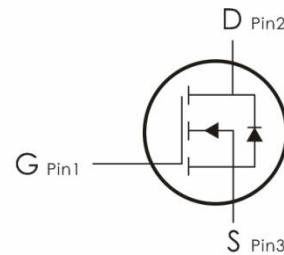
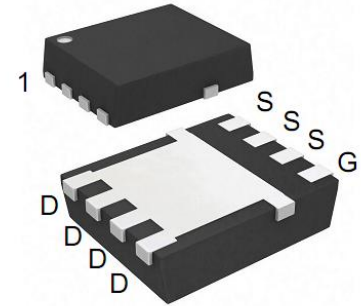
Description:

This N-Channel MOSFET uses advanced SGT technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=60V, I_D=120A, R_{DS(on)} < 3.5 m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DON120N06	120N06	DFN5*6-8	5000 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^\circ C$ ⁽¹⁾	120	A
	Continuous Drain Current- $T_C=100^\circ C$ ⁽¹⁾	79	
I_{DM}	Pulsed Drain Current ⁽²⁾	240	A
P_D	Power Dissipation	86	W
E_{AS}	Single Pulse Avalanche Energy ⁽³⁾	248	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	1.56	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.45	$^\circ C/W$

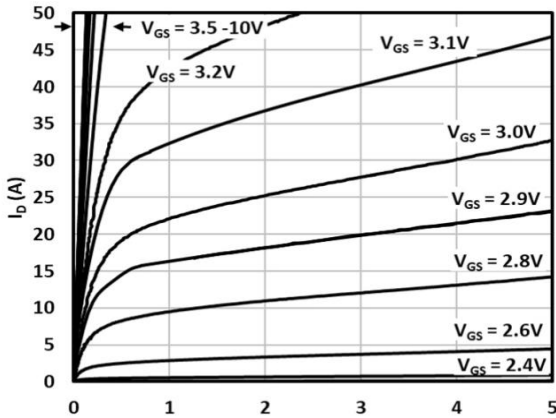
Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourtce Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	60	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =60V, T _J =25° C	---	---	1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 20V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	---	2	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =20A	---	2.4	3.5	m Ω
		V _{GS} =4.5V, I _D =20A	---	3.4	4.5	m Ω
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =30A, T _J =25° C	---	92	---	S
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz,, T _J =25° C	---	3000	---	pF
C _{oss}	Output Capacitance		---	1120	--	pF
C _{rss}	Reverse Transfer Capacitance		---	40	---	pF
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =30V, I _D =15A, R _G =3 Ω ,V _{GS} =4.5V, T _J =25° C	---	20	---	ns
t _r	Rise Time		---	55	---	ns
t _{d(off)}	Turn-Off Delay Time		---	100	---	ns
t _f	Fall Time		---	24	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =30V, I _D =30A, T _J =25° C	---	65	---	nC
Q _{gs}	Gate-Source Charge		---	10	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	15	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage	V _{GS} =0V, I _S =30A, T _J =25° C	---	0.8	---	V
T _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =30A	---	34	---	NS
Q _{rr}	Reverse Recovery Charge	di/dt=100A/us, T _J =25° C	---	50	---	NC

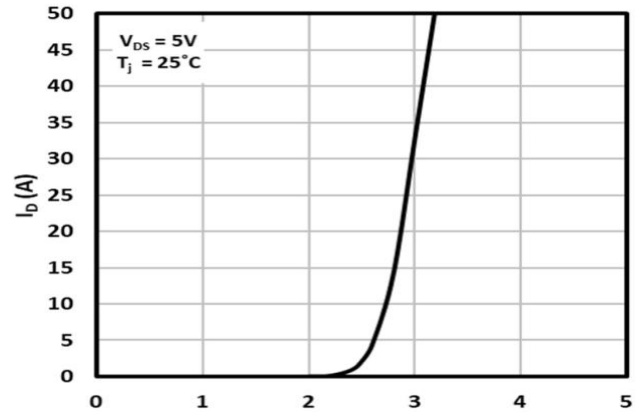
Notes:

- (1) Rated according to $R_{\theta JC}$.
- (2) Limited by maximum T_J .
- (3) Starting $T_J = 25^\circ\text{C}$, $L = 0.5\text{mH}$, $V_{DD} = 30\text{V}$, $V_{GS} = 10\text{V}$.
- (4) Pulse width limited by maximum T_J .

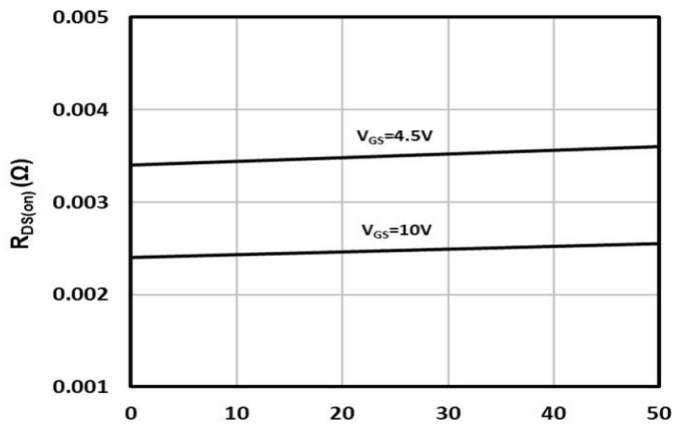
Typical Characteristics: ($T_C = 25^\circ\text{C}$ unless otherwise noted)



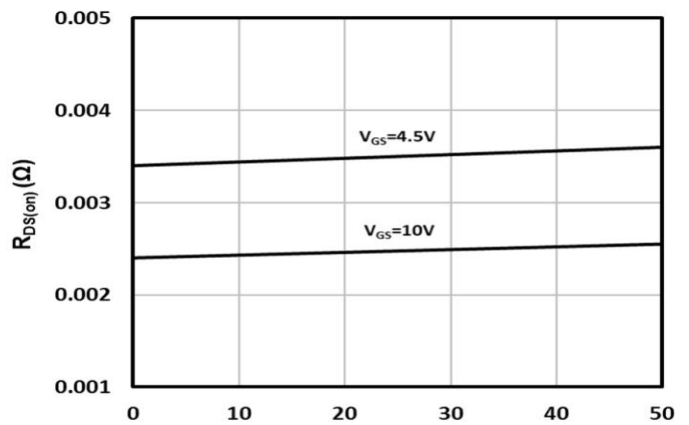
$V_{DS}(V)$
Fig.1 Output characteristics



$V_{GS}(V)$
Fig.2 Transfer characteristics



$V_{GS}(V)$
Fig.3 On-resistance vs. gate voltage



$I_D(A)$
Fig.4 On-resistance vs. drain current

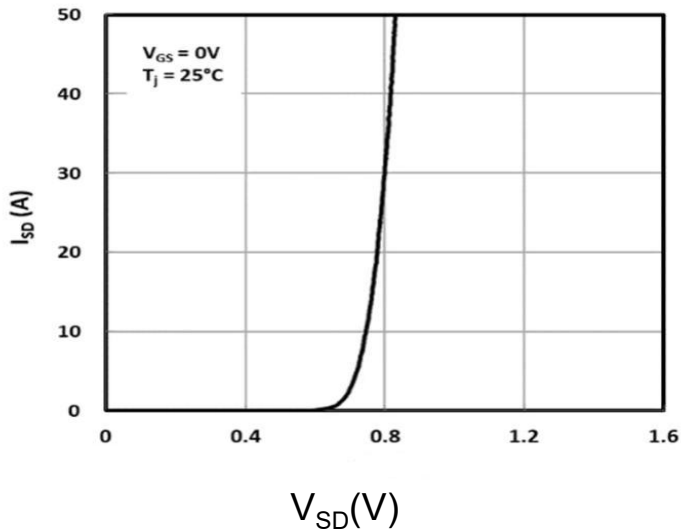


Fig.5 Source-to-drain diode forward characteristics

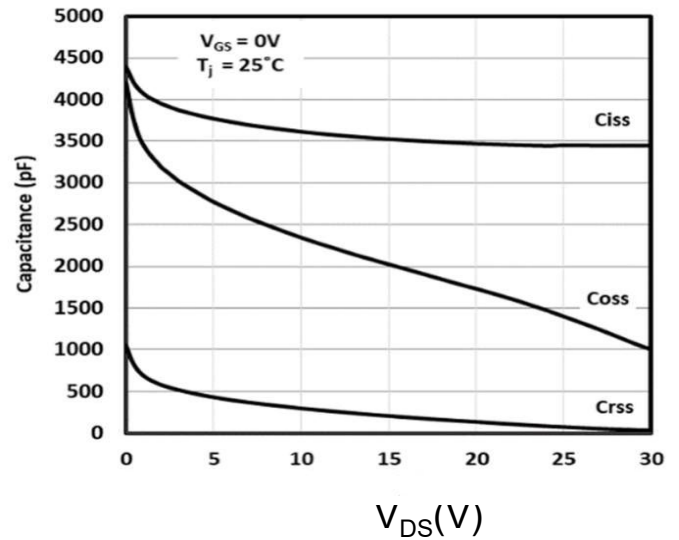


Fig.6 Capacitance vs. drain-to-source voltage

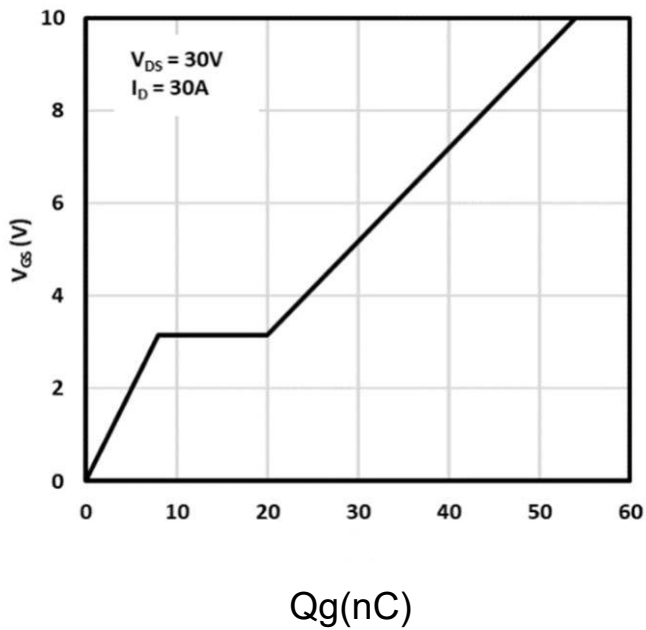


Fig.7 Gate-to-source voltage vs. gate charge

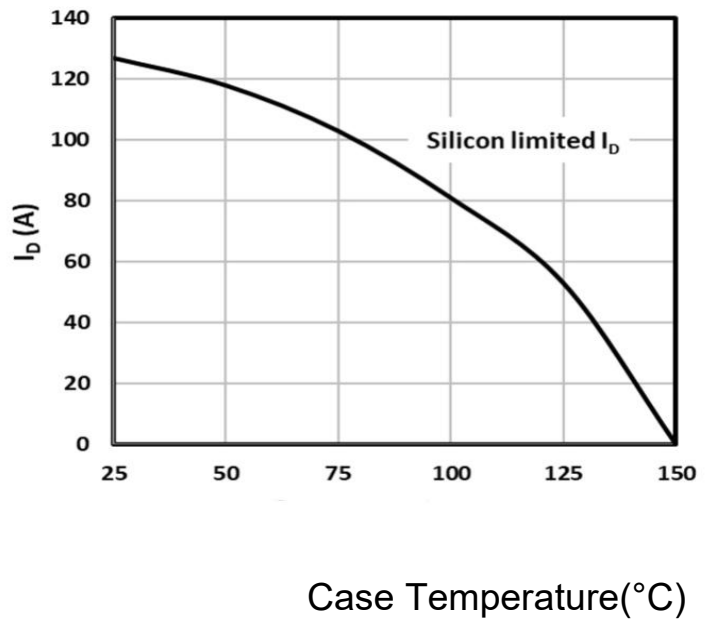


Fig.8 Maximum drain current VS. case temperature

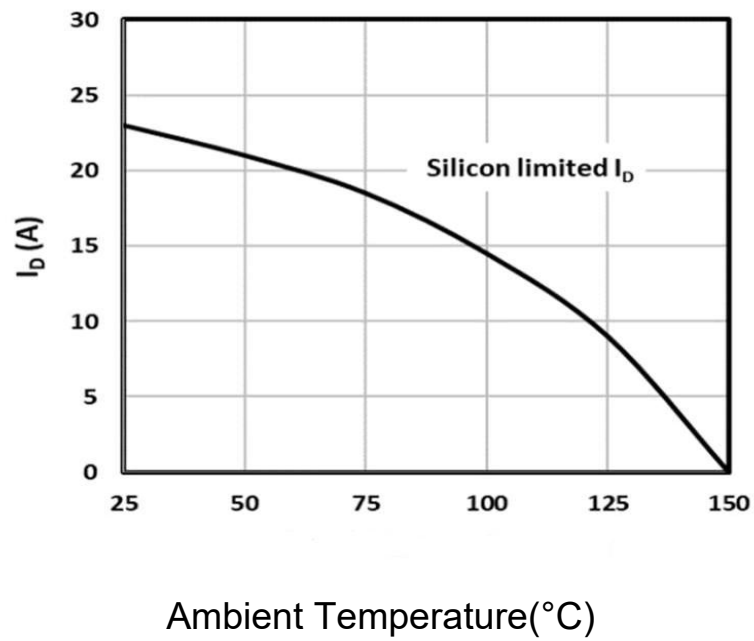
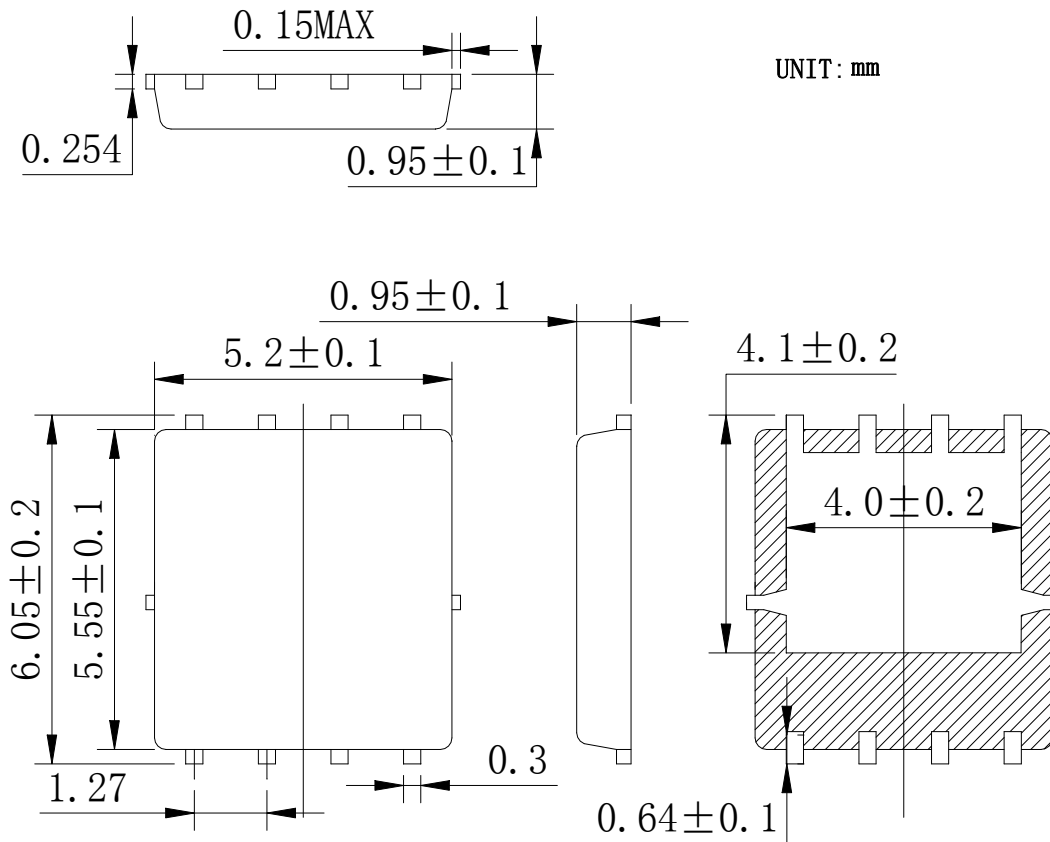


Fig. 9 Maximum drain current Vs. ambient temperature

DFN5×6-8Package Information:


Marking Information:

①. Doingter LOGO

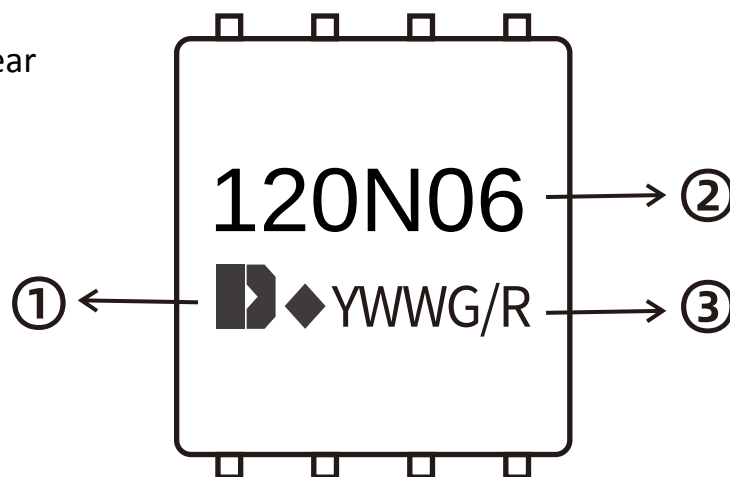
②. Part NO.

③. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



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