

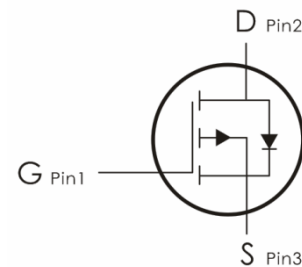
Description:

This P-Channel MOSFET uses advanced trench 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) $V_{DS}=-30V, I_D=-70A, R_{DS(ON)}<7.5m\Omega@V_{GS}=-10V$
- 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	Quantity
DOP70P03	70P03	TO-220	1000PCS

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

Symbol	Parameter	Ratings	
V_{DS}	Drain- Source Voltage	-30	V
V_{GS}	Gate- Source Voltage	± 20	V
I_D	Continuous Drain Current- $T_C=25^{\circ}C$	-70	A
	Continuous Drain Current- $T_C=100^{\circ}C$	-44	
I_{DM}	Drain Current -Pulsed ¹	-240	A
P_D	Power Dissipation- $T_C=25^{\circ}C$	110	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.4	

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	-30	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-30V, T _J =25℃	---	---	-1	μA
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 μA	-1	-1.5	-2	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =-10V, I _D =-20A	---	5.7	7.5	mΩ
		V _{GS} =-4.5V, I _D =-20A	---	8	10.5	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	3150	---	pF
C _{oss}	Output Capacitance		---	358	---	
C _{rss}	Reverse Transfer Capacitance		---	342	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, I _D =-20A, R _G =3Ω, V _{GS} =-10V	---	10	---	ns
t _r	Rise Time		---	47	---	ns
t _{d(off)}	Turn-Off Delay Time		---	75	---	ns
t _f	Fall Time		---	44	---	ns
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-15V, I _D =-20A	---	84	---	nC
Q _{gs}	Gate-Source Charge		---	13	---	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 =20A	---	---	-1.2	V
I _S	Diode Forward Current	V _D =V _G =0V	---	---	-70	A
I _{S-M}	Diode Forward Current	V _D =V _G =0V	---	---	-210	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J = 25^\circ\text{C}$, $V_{DD} = -30\text{V}$, $V_G = -10\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

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

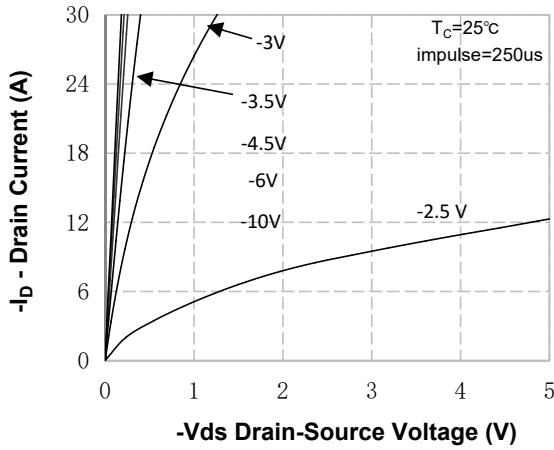


Figure 1. On-Region Characteristics

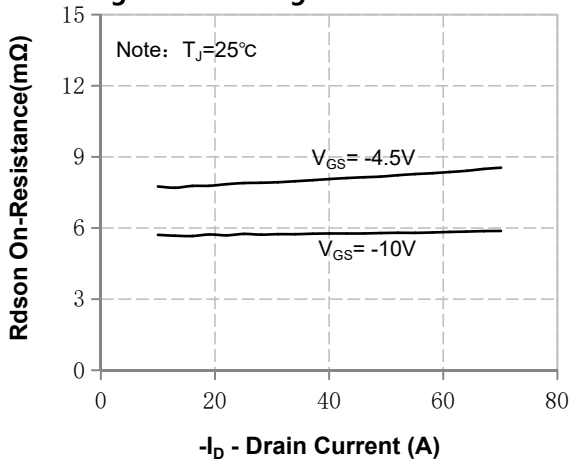


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

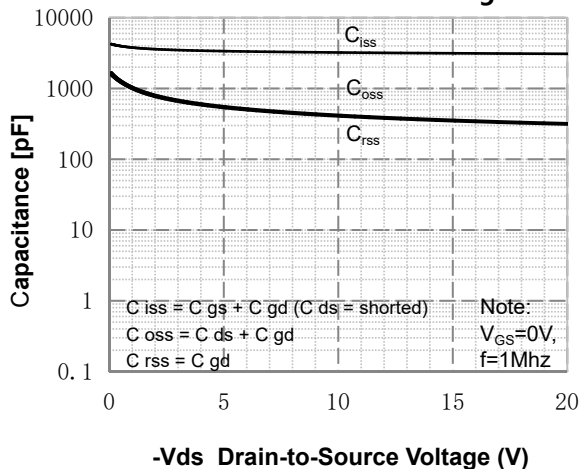


Figure 5. Capacitance Characteristics

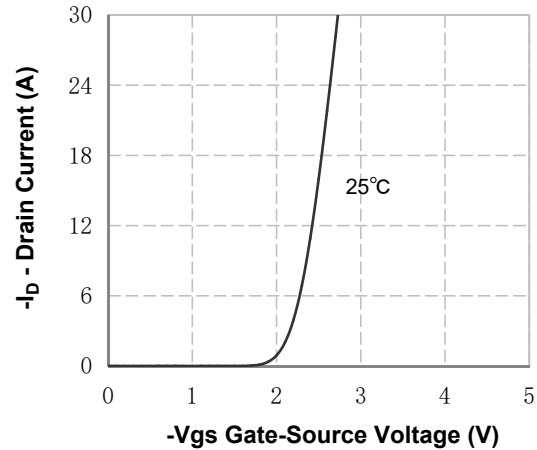


Figure 2. Transfer Characteristics

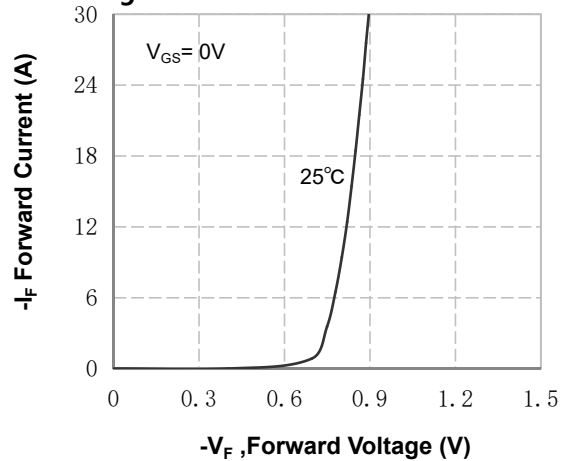


Figure 4. Body Diode Forward Voltage Variation with Source Current

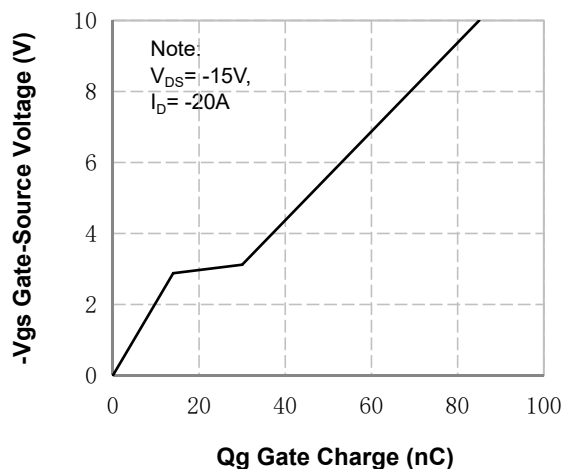


Figure 6. Gate Charge Characteristics

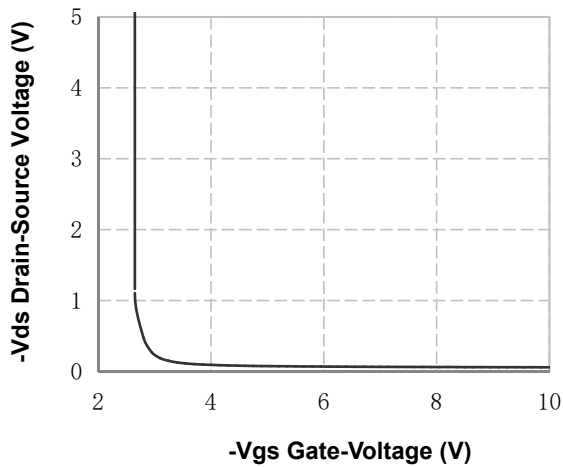


Figure 7. Vds Drain-Source Voltage vs Gate Voltage

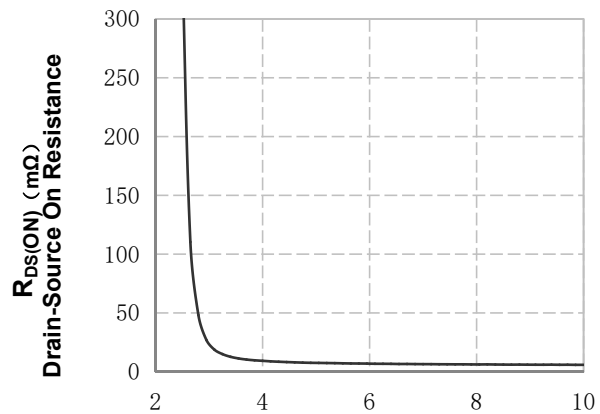


Figure 8. On-Resistance vs Gate Voltage

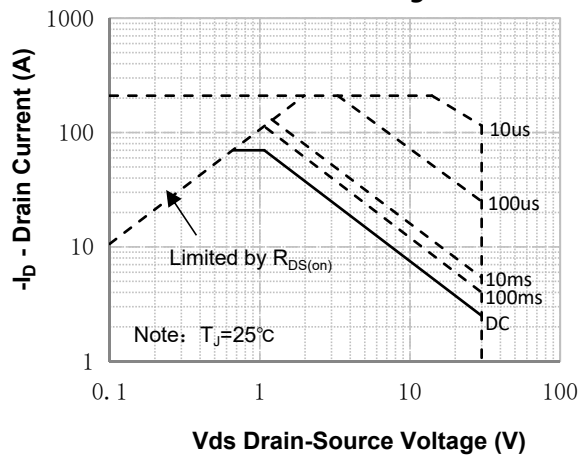


Figure 9. Maximum Safe Operating Area

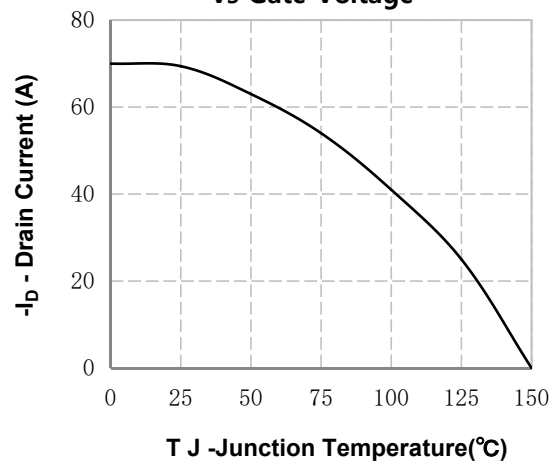


Figure 10. Maximum Continuous Drain Current vs Case Temperature

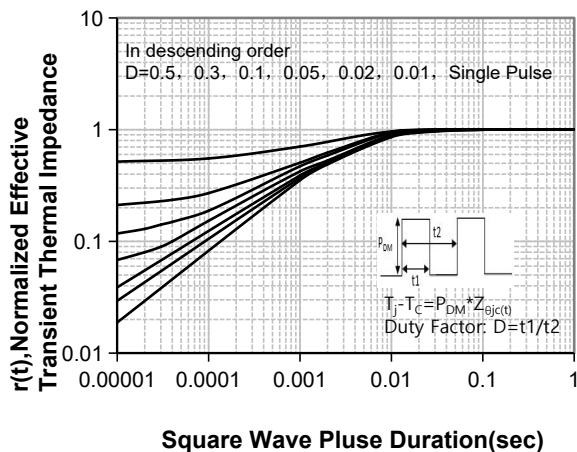
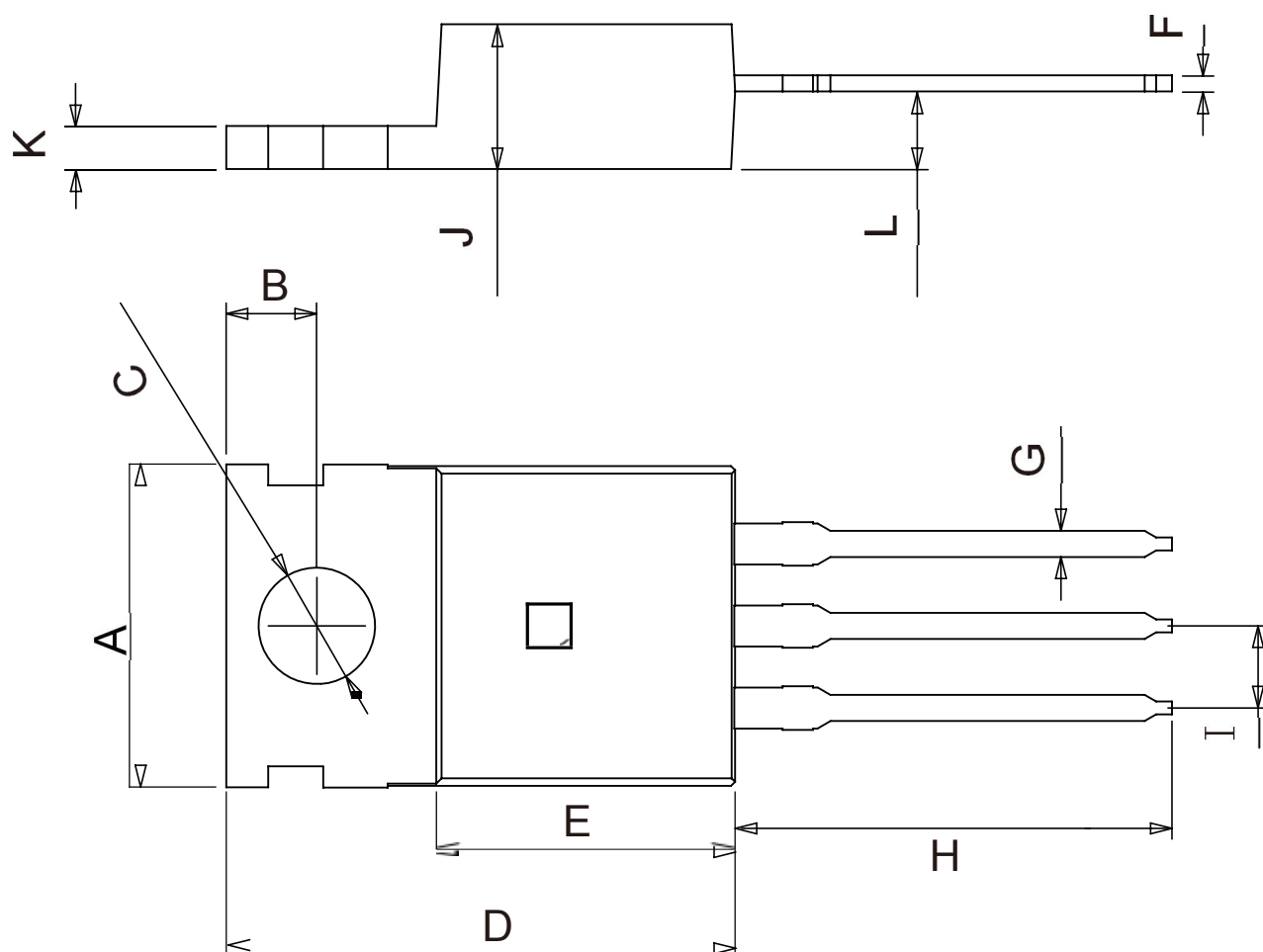


Figure 11. Transient Thermal Response Curve

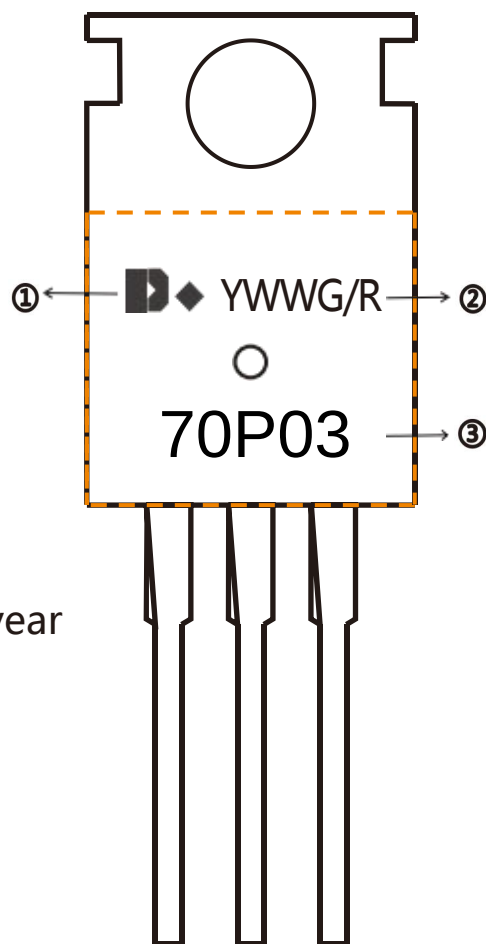
TO-220Package Outline Data



COMMON DIMENSIONS CUNITS MEASURE= MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	9.50	10.00	10.90
B	2.22	2.75	3.27
C	3.34	3.60	4.31
D	14.50	15.75	16.50
E	8.80	9.30	9.80
F	0.28	- -	0.64
G	0.68	- -	0.94
H	12.52	13.52	14.52
I	2.01	2.54	3.07
J	4.04	4.48	5.10
K	1.14	1.33	1.40
L	2.14	2.40	3.19

Unit:mm

Marking Information



① : Doingter LOGO

② : Date Code (YWWG / R)

Y: Year Code , last digit of the year

WW : Week Code (01-53)

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

③ : Part NO.

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