

Description:

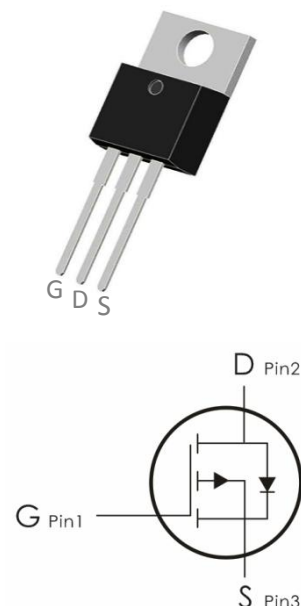
This P-Channel MOSFET uses advanced trench technology and

design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=-60V, I_D=-17A, R_{DS(ON)}<90m\Omega @V_{GS}=-10V$
- 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
DOP17P06	17P06	TO- 220	50 pcs/Tube

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 Curren ¹	-17	A
	Continuous Drain Current- $T_C=100^{\circ}C$ ¹	-11	
I_{DM}	Pulsed Drain Current ²	-34	
P_D	Power Dissipation ⁴	52.1	W
E_{AS}	Single pulse avalanche energy ³	30	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case ¹	2.4	$^{\circ}C/W$

R_{θJA}	Thermal Resistance, Junction to Ambient ¹	62	°C/W
------------------------	--	----	------

Electrical Characteristics: (T_C=25°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} =-48V	---	---	-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	---	-2.5	V
R _{DS(ON)}	Drain-Source On Resistance ²	V _{GS} =-10V,I _D =-12A	---	80	90	m Ω
		V _{GS} =-4.5V,I _D =-6A	---	95	125	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	1079	---	pF
C _{OSS}	Output Capacitance		---	72	--	
C _{rss}	Reverse Transfer Capacitance		---	49	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =-15V, I _D =-1A, R _{ENG} =3.3 Ω ,V _{GS} =-10V	---	8.7	---	ns
t _r	Rise Time		---	19.5	---	ns
t _{d(off)}	Turn-Off Delay Time		---	47.1	---	ns
t _f	Fall Time		---	9.5	---	ns
Q _g	Total Gate Charge	V _{GS} =-4.5V, V _{DS} =-12V, I _D =-6A	---	11.7	---	nc
Q _{gs}	Gate-Source Charge		---	1.83	---	nc
Q _{gd}	Gate-Drain “Miller” Charge		---	6.48	---	nc
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =-1A	---	---	-1	V
I _S	Continuous Drain Curren ^{1,5}	VD=VG=0V	---	---	-17	A
I _{SM}	Pulsed Drain Current		---	---	-34	A

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $V_{DD}=-25V, V_{GS}=-10V, L=0.1mH, I_{AS}=-24.4A$
4. The power dissipation is limited by 150 $^{\circ}C$ junction temperature 5. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

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

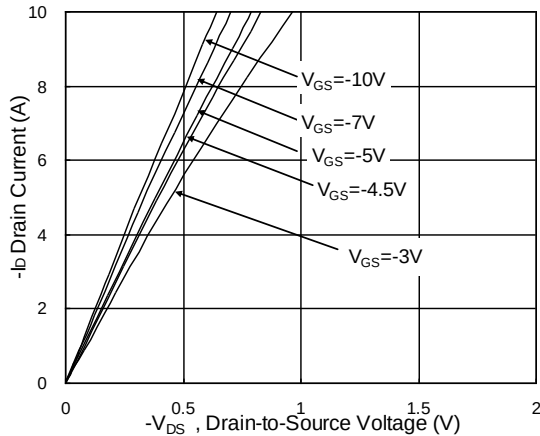


Fig.1 Typical Output Characteristics

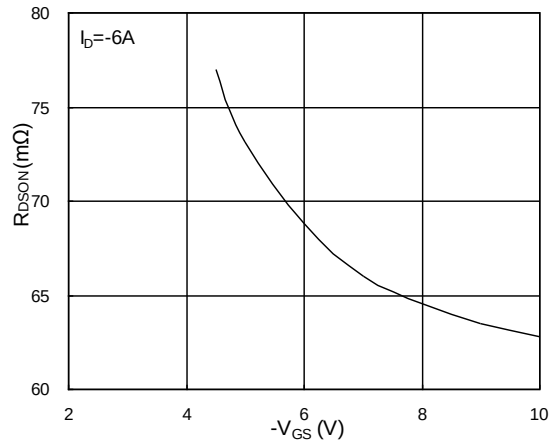


Fig.2 On-Resistance v.s Gate-Source

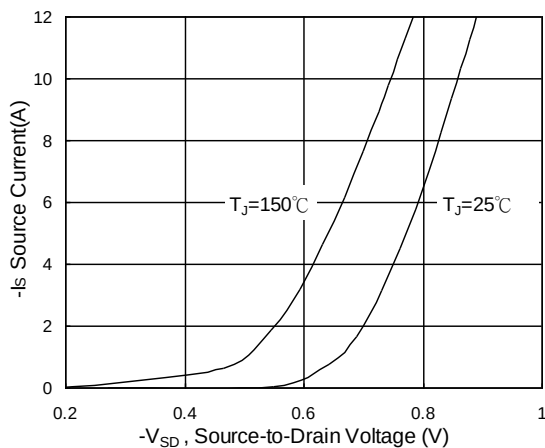


Fig.3 Forward Characteristics of Reverse

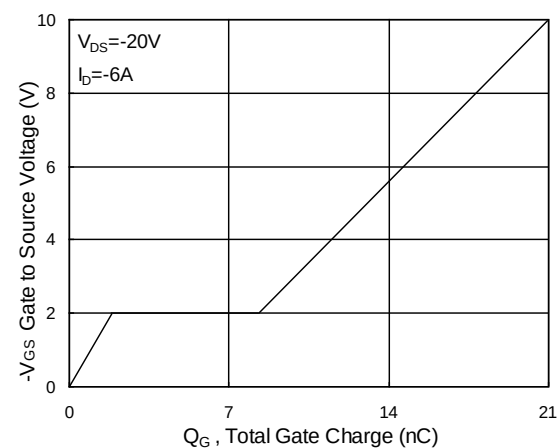


Fig.4 Gate-Charge Characteristics

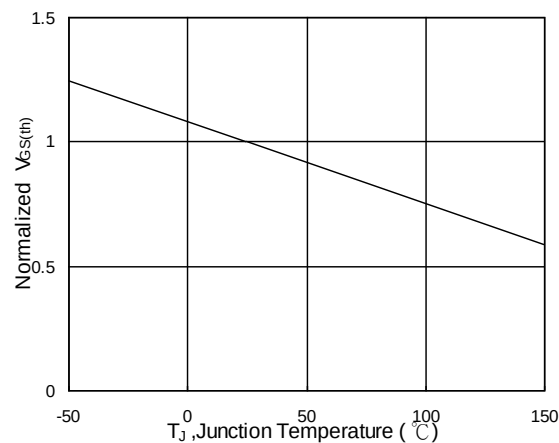


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

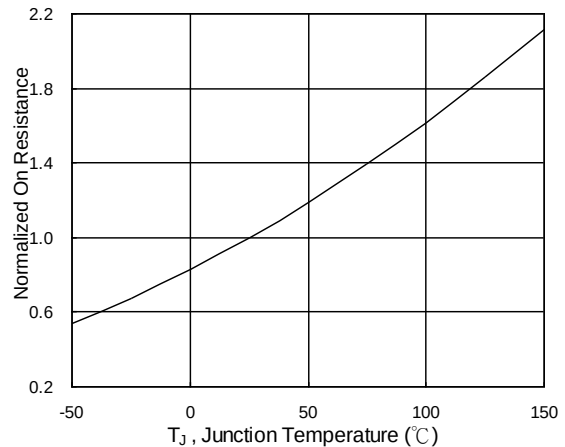


Fig.6 Normalized $R_{DS(on)}$ v.s T_J

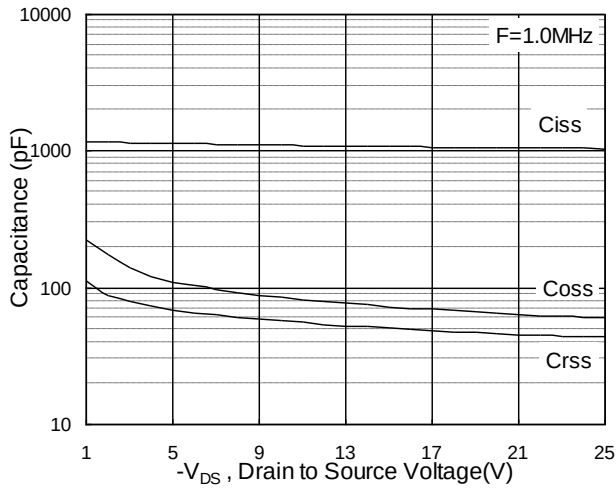


Fig.7 Capacitance

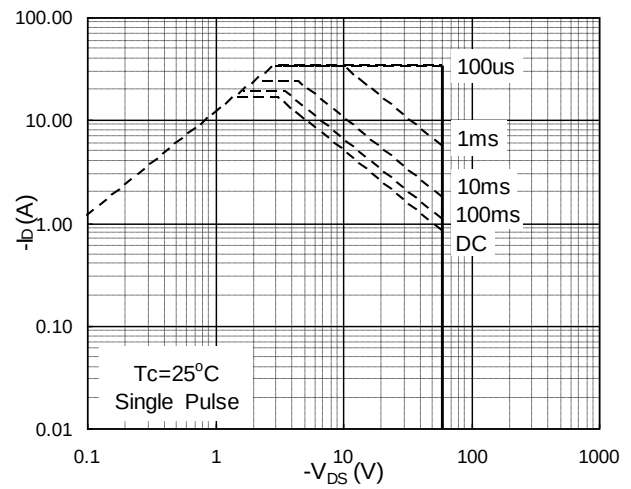


Fig.8 Safe Operating Area

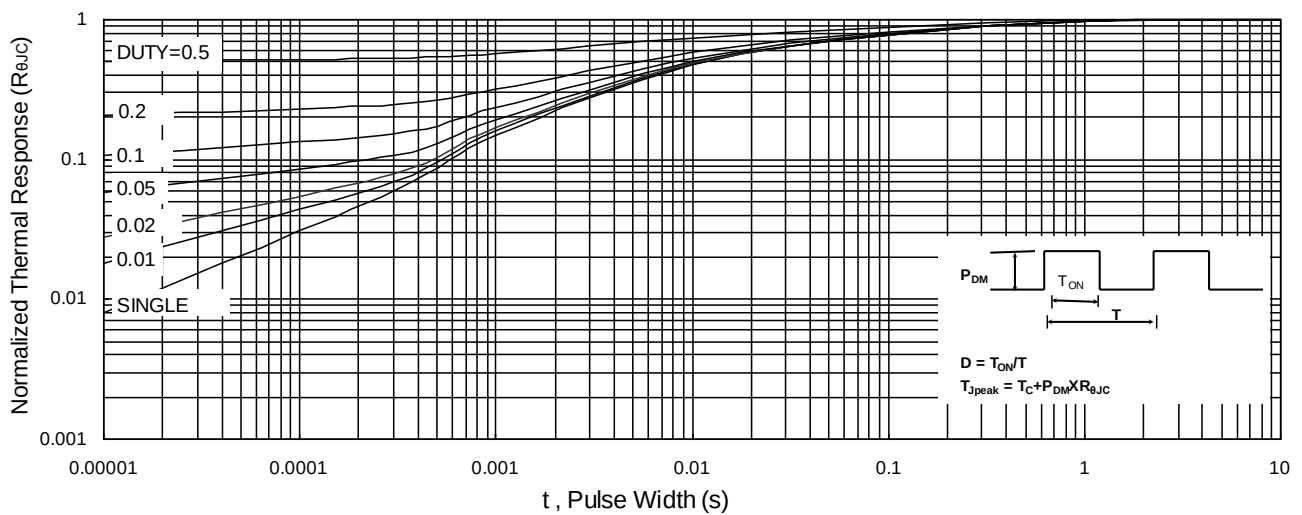


Fig.9 Normalized Maximum Transient Thermal Impedance

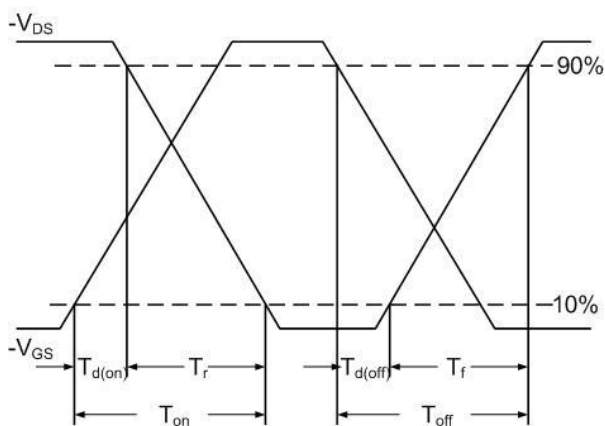


Fig.10 Switching Time Waveform

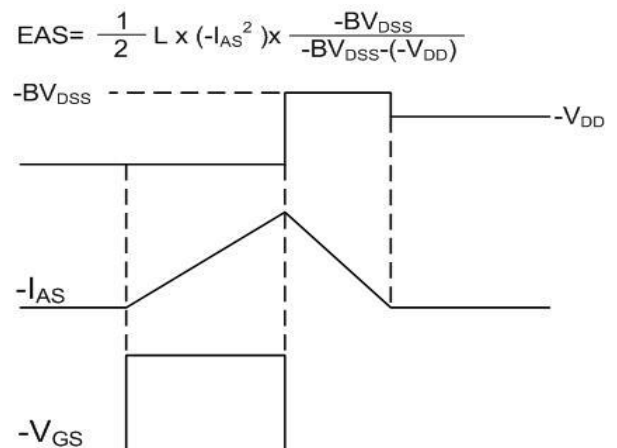
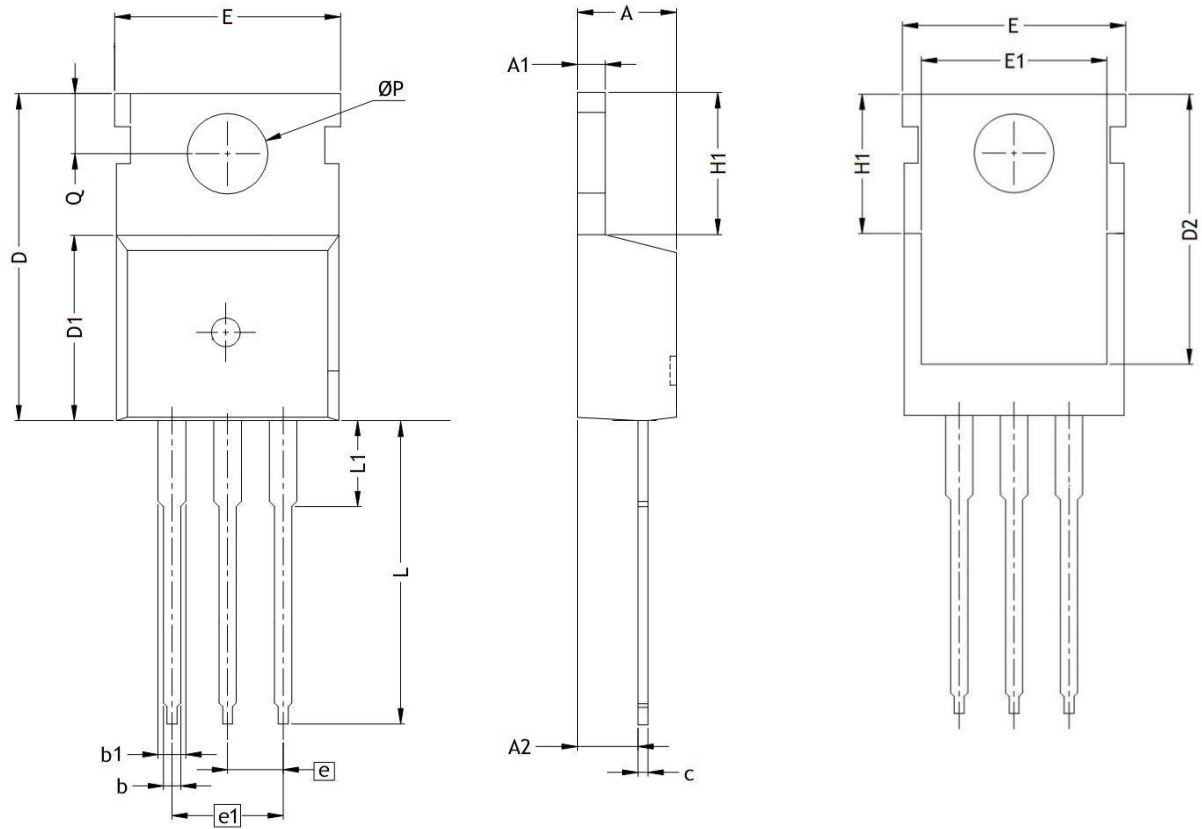


Fig.11 Unclamped Inductive Waveform

$$EAS = \frac{1}{2} L \times (-I_{AS}^2) \times \frac{-BV_{DSS}}{-BV_{DSS} - (-V_{DD})}$$

TO-220 Package Information:



UNIT: mm

SYMBOLS	A	A1	A2	b	b1	c	D	D1	D2	E	E1	e
MIN	4.25	1.25	2.35	0.7	1.15	0.45	14.35	8.80	13.05	9.90	7.85	2.540
MAX	4.65	1.35	2.55	0.9	1.75	0.60	15.95	9.50	13.65	10.35	8.85	BSC
SYMBOLS	e1	H1	L	L1	Q	φP						
MIN	5.080	6.30	12.85	2.85	2.70	3.50						
MAX	BSC	6.65	13.50	3.25	2.90	3.70						

Marking Information:

①. Doingter LOGO

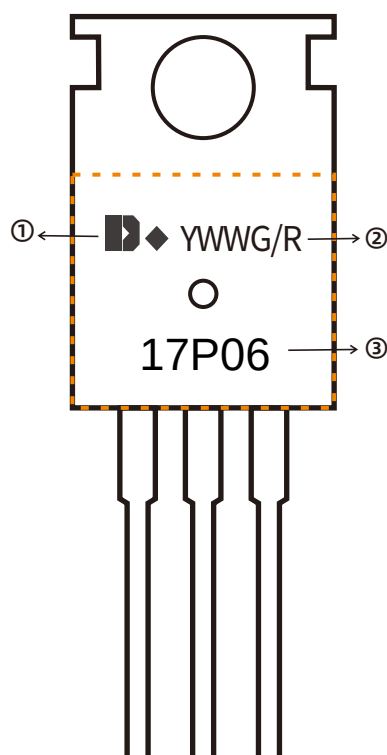
②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

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

③. Part NO.

**Attention :**

- Information furnished in this document is believed to be accurate and reliable. However, Shenzhen Doingter Semiconductor Co.,Ltd. assumes no responsibility for the consequences of use without consideration for such information nor use beyond it.
 - Information mentioned in this document is subject to change without notice, apart from that when an agreement is signed, Shenzhen Doingter complies with the agreement. Products and information provided in this document have no infringement of patents.
 - Shenzhen Doingter assumes no responsibility for any infringement of other rights of third parties which may result from the use of such products and information. This document supersedes and replaces all information previously supplied.
-  Is a registered trademark of Shenzhen Doingter Semiconductor Co., Ltd. Copyright © 2013 Shenzhen Doingter Semiconductor Co.,Ltd. Printed All rights reserved.