MY70P06D

-60V P-Channel Enhancement ModeMOSFET

MAOYUANWEI semiconductor

General Description

The MY70P06D uses P-Channel MOSFET uses advanced trench technology and design to provide excellent RDS(on) with low gate charge. It can be used in a wide variety of applications.

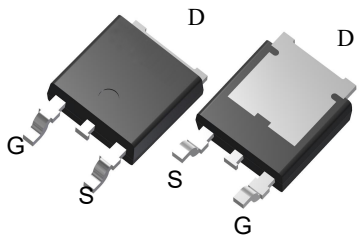
RoHS Compliant

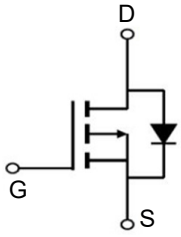
Features

V_{DSS}	-60	V
I_D	-70	A
$R_{DS(ON)}$(atV_{GS} =-10V)	16.5	mÝ
$R_{DS(ON)}$(atV_{GS} =-4.5V)	18.5	mÝ

Application

- Battery protection
- Load switch
- Uninterruptible power supply





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY70P06D	TO-252	MY70P06D	2500

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ -10V[1,6]	-70	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ -10V[1,6]	-60	A
I_{DM}	Pulsed Drain Current[2]	-280	A
EAS	Single Pulse Avalanche Energy[3]	700	mJ
P_D@T_C=25℃	Total Power Dissipation[4]	270	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta JC}$	Thermal Resistance Junction-case [1]	0.46	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=-250μA	-60	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-60V	---	---	-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=-250μA	-1.1	-1.6	-2.2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V,I_D=-20A	---	16.5	20	mΩ
		V_{GS}=-4.5V,I_D=-20A	---	18.5	22	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-20V, V_{GS}=0V, f=1MHz	---	4399	---	pF
C_{oss}	Output Capacitance		---	258	---	
C_{rss}	Reverse Transfer Capacitance		---	211	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V, I_D=-20A, V_{GS}=-10V, R_G=1Ω	---	23	---	ns
t_r	Rise Time		---	17	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	55	---	ns
t_f	Fall Time		---	29	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-30V, I_D=-20A	---	114	---	nC
Q_{gs}	Gate-Source Charge		---	27.3	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	49	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Drain Diode Forward Voltage	V_{GS}=0V,I_S=-20A	---	---	-1.2	V
I_S	Continuous Source Current	V_G=V_D=0V	---	---	-70	A
I_{SM}	Pulsed Source Current		---	---	-280	A
Trr	Reverse Recovery Time	T J = 25° C, IF =-20A, di/dt =100A/μs	---	117	---	nS
Qrr	Reverse Recovery Charge		---	420	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T J =25℃, VDD =-25V, VG =-5V, RG =25Ω, L=0.5mH, IAS
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics: (T_C=25℃ unless otherwise noted)

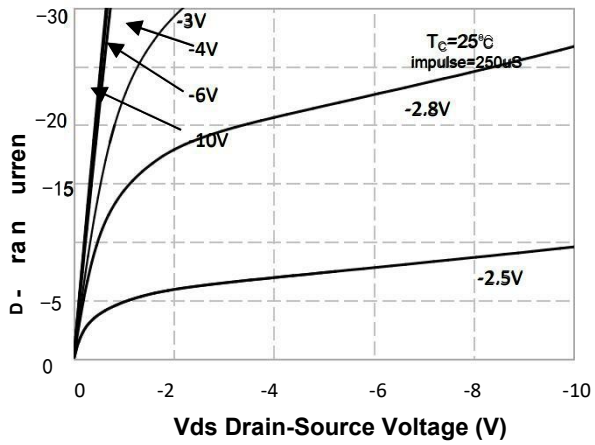


Figure 1. On-Region Characteristics

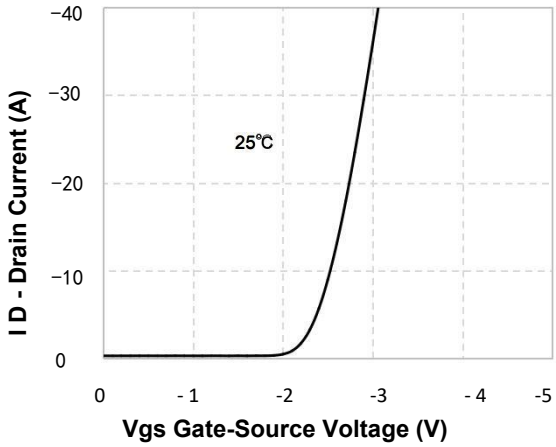


Figure 2. Transfer Characteristics

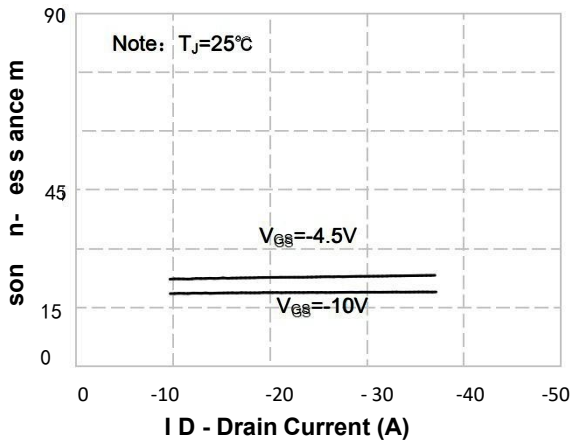


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

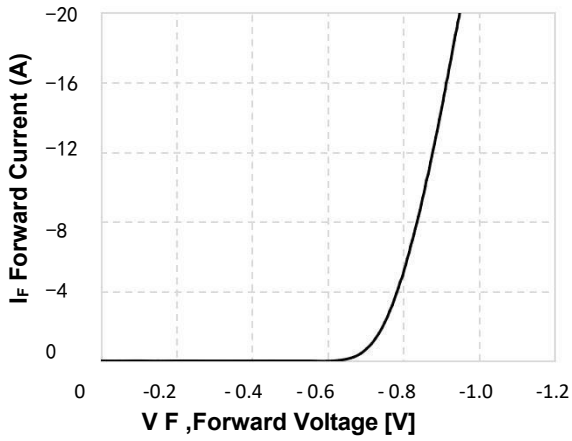


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

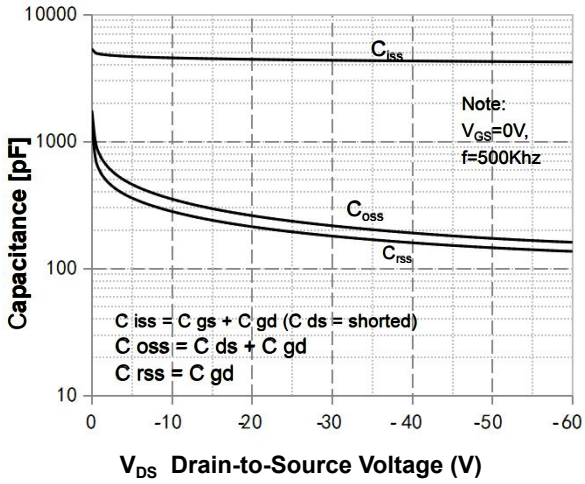


Figure 5. Capacitance Characteristics

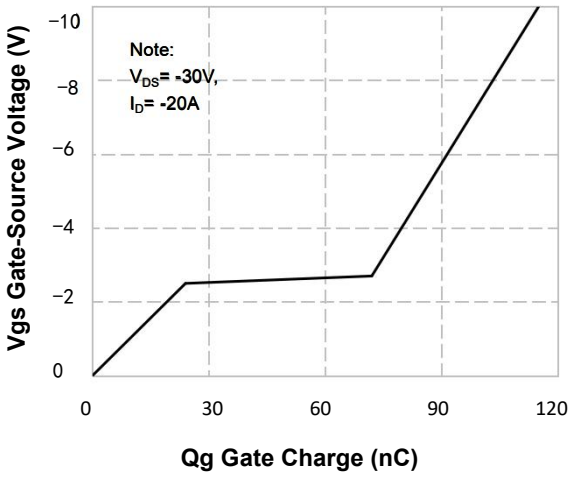


Figure 6. Gate Charge Characteristics

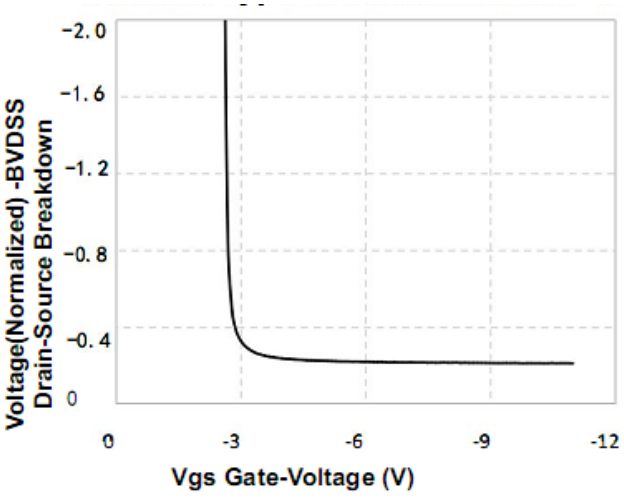


Figure 7. Breakdown Voltage Variation vs Gate-Voltage

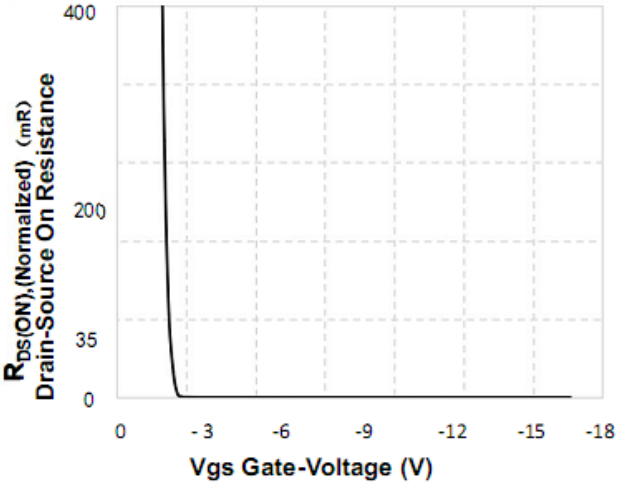


Figure 8. On-Resistance Variation vs Gate Voltage

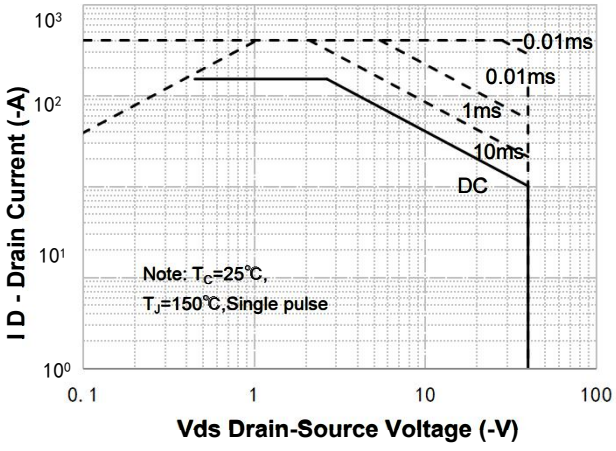


Figure 9. Maximum Safe Operating Area

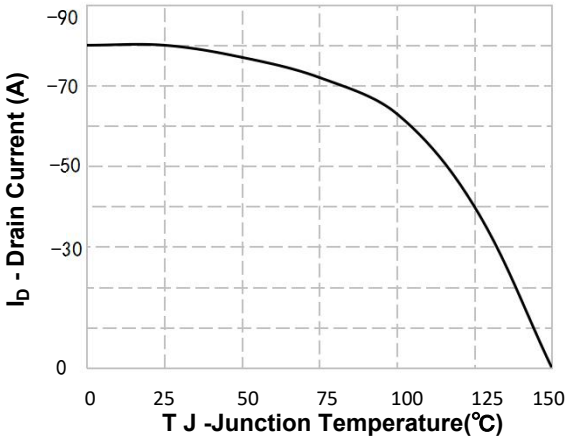
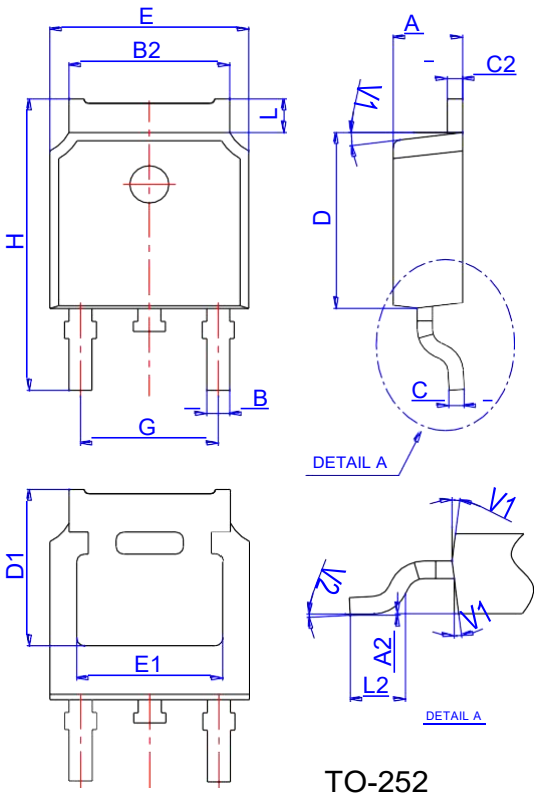


Figure 10. Maximum PContinuous Drain Currentvs Case Temperature

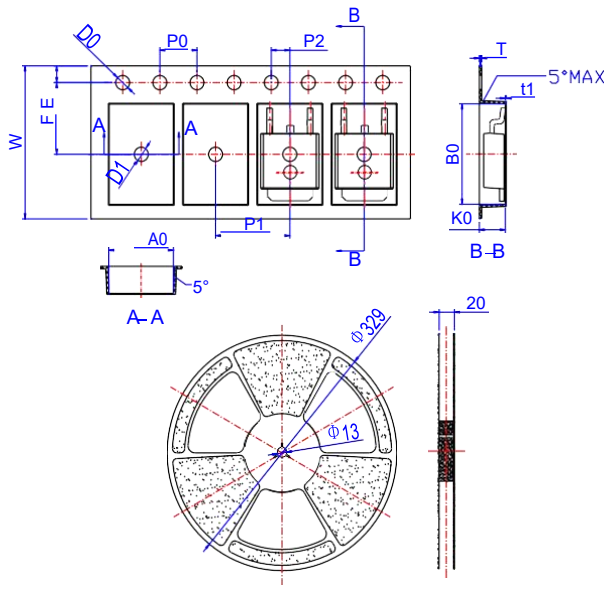
Package Mechanical Data-TO-252-JQ Single



TO-252

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Reel Specification-TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	15.90	16.00	16.10	0.626	0.630	0.634
E	1.65	1.75	1.85	0.065	0.069	0.073
F	7.40	7.50	7.60	0.291	0.295	0.299
D0	1.40	1.50	1.60	0.055	0.059	0.063
D1	1.40	1.50	1.60	0.055	0.059	0.063
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.90	2.00	2.10	0.075	0.079	0.083
A0	6.85	6.90	7.00	0.270	0.271	0.276
B0	10.45	10.50	10.60	0.411	0.413	0.417
K0	2.68	2.78	2.88	0.105	0.109	0.113
T	0.24		0.27	0.009		0.011
t1	0.10			0.004		
10P0	39.80	40.00	40.20	1.567	1.575	1.583