

General Description

The MY70P06D uses 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.

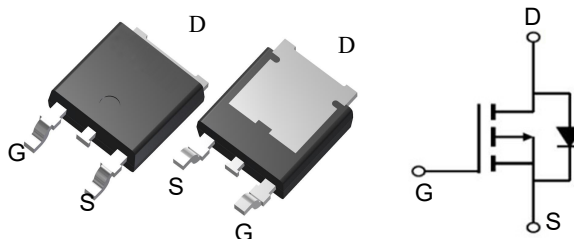


Features

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

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ -10V^{1,6}$	-70	A
$I_D@T_C=100^{\circ}C$	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
$P_D@T_C=25^{\circ}C$	Total Power Dissipation ⁴	270	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction-case ¹	0.46	$^{\circ}C/W$

Electrical Characteristics (T_J=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} =-60V	---	---	-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	-1.1	-1.6	-2.2	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-20A	---	16.5	20	m Ω
		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 =1 Ω	---	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
T _{rr}	Reverse Recovery Time	T J = 25 ° C, IF =-20A, di/dt =100A/μs	---	117	---	nS
Q _{rr}	Reverse Recovery Charge		---	420	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J = 25^\circ\text{C}$, $V_{DD} = -25\text{V}$, $V_G = -5\text{V}$, $R_G = 25\Omega$, $L = 0.5\text{mH}$, I_{AS}
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)

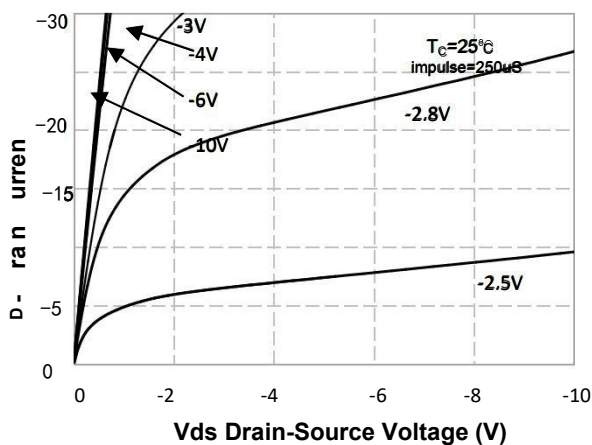


Figure 1. On-Region Characteristics

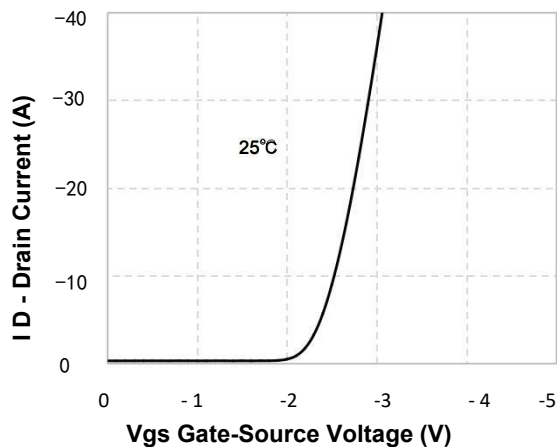


Figure 2. Transfer Characteristics

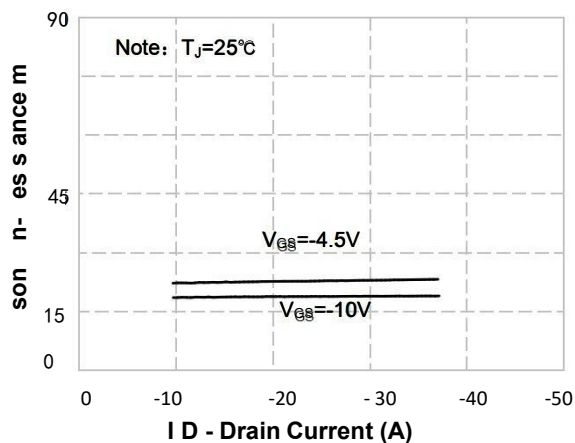


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

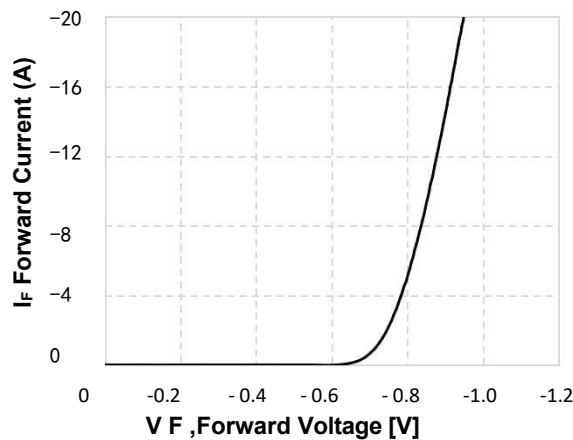


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

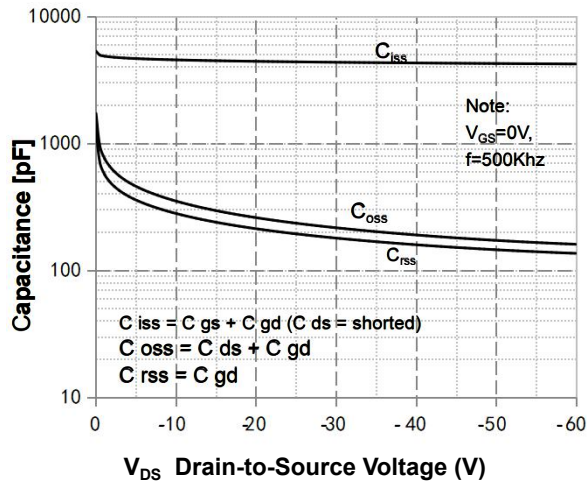


Figure 5. Capacitance Characteristics

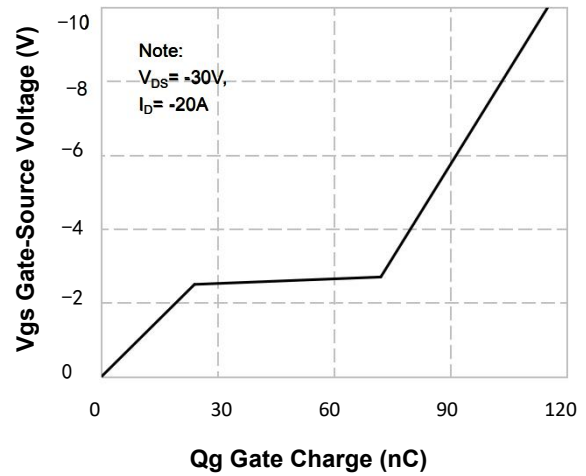


Figure 6. Gate Charge Characteristics

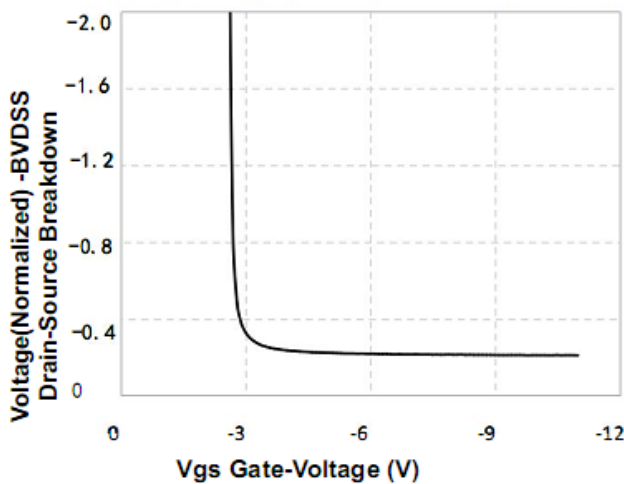


Figure 7. Breakdown Voltage Variation vs Gate-Voltage

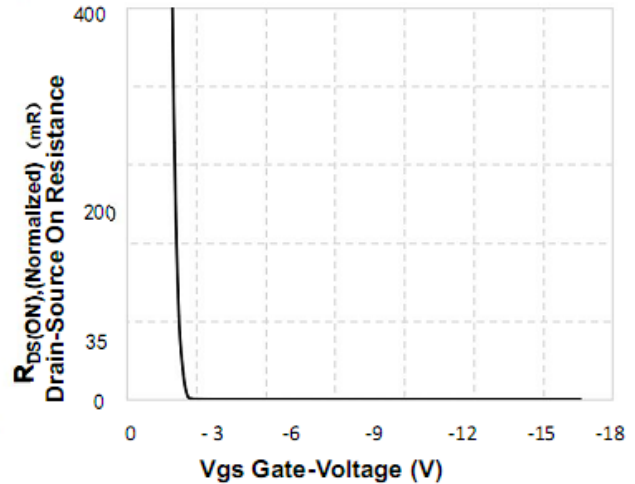


Figure 8. On-Resistance Variation vs Gate Voltage

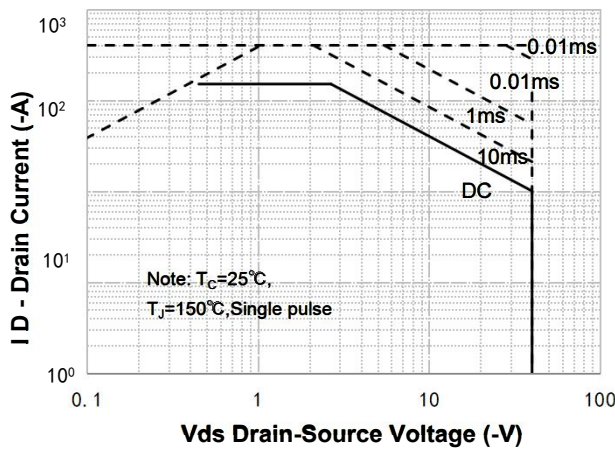


Figure 9. Maximum Safe Operating Area

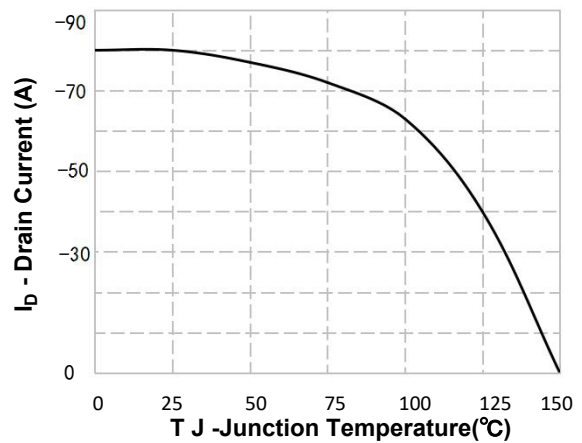


Figure 10. Maximum PContinuous Drain Current vs Case Temperature

Technical drawing of the TO-252 package showing front, side, and detail views with dimensions E, B2, L, H, G, B, D, A, C2, V1, C, D1, E1, A2, L2, V2, V3, and DETAIL A.

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