CP75P03G

30V P-Channel Enhancement Mode MOSFET

Description

The CP75P03G 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.

General Features

- V_{DS} =-30V，I_D =-75A
  $R_{DS(ON)}$(Typ.)=6.3mΩ @V_{GS}=-10V
  $R_{DS(ON)}$(Typ.)=10.1mΩ @V_{GS}=-4.5V
  High power and current handing capability
- Lead free product is acquired
- Surface mount package

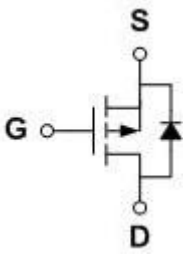
Application

- Load switch

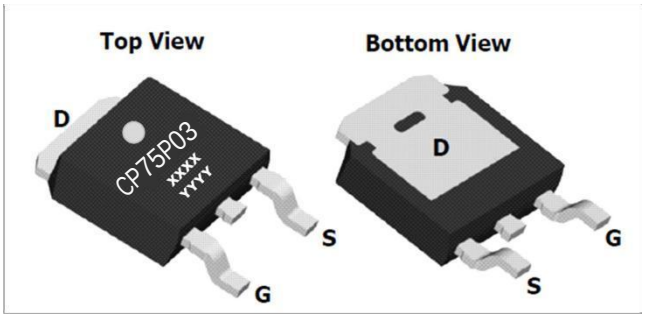
Package

- TO-252-2L

Schematic diagram



Marking and pin assignment



XXXX—Wafer Information
YYYY—Quality Code

Ordering Information

Part Number	Storage Temperature	Package	Devices Per Reel
CP75P03G-G	-55°C to +150°C	TO-252-2L	2500

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

parameter		symbol	limit	unit
Drain-source voltage		V_{DS}	-30	V
Gate-source voltage		V_{GS}	±20	V
Continuous Drain Current	TC=25°C	I_D	-75	A
	TC=100°C		-50	
Pulsed Drain Current		I_{DP}	-300	A
Avalanche energy (L=0.5mH)		E_{AS}	266	mJ
Maximum power dissipation	TC=25°C	P_D	60	W
	TC=70°C		40	
Operating junction Temperature range		Tj	-55—150	℃

Electrical Characteristics (TA=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=-250μA	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V	-	-	-1	μA
		T_J=55°C	-	-	-5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1	-1.6	-2.5	V
Drain-source on-state resistance[1]	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-10A	-	6.3	8	mΩ
		V_{GS}=-4.5V, I_D=-10A	-	10.1	13	
On Status Drain Current	$I_{D(ON)}$	V_{DS}=-10V, V_{GS}=-10V	-75	-	-	A
Diode Characteristics						
Diode Continuous Forward Current	I_S		-	-	-75	A
Reverse Recovery Time	t_{rr}	I_F=-20A, dI/dt=100A/us	-	16	-	ns
Reverse Recovery Charge	Q_{rr}		-	33	-	nC
Dynamic Characteristics[2]						
Gate Resistance	R_G	V_{GS}=0V, V_{DS}=0V,f=1MHz	-	4.8	-	Ω
Input capacitance	C_{ISS}	V_{GS}=0V ,V_{DS}=-15V f=1.0MHz	-	3042	-	pF
Output capacitance	C_{OSS}		-	383	-	
Reverse transfer capacitance	C_{RSS}		-	356	-	
Turn-on delay time	$t_{D(ON)}$	V_{GS}=-5V, V_{DS}=-15V, R_L=20Ω, I_D=-10A, R_G=6Ω	-	12	-	ns
Turn-on Rise time	tr		-	22	-	
Turn-off delay time	$t_{D(OFF)}$		-	36	-	
Turn-off Fall time	tf		-	24	-	
Total gate charge	Q_g	V_{GS}=-5V,I_D=-10A V_{DS}=-15V	-	35.1		nC
Gate-source charge	Q_{gs}			20		
Gate-drain charge	Q_{gd}		-	5.7	-	
Drain-Source Diode Characteristics						
Diode forward voltage	V_{SD}	I_{SD}=-10A,V_{GS}=0V	-	-0.81	-1.5	V

Note: 1：Pulse test; pulse width ≦ 300ns, duty cycle ≦ 2%.

2：Guaranteed by design, not subject to production testing.

Typical Performance Characteristics

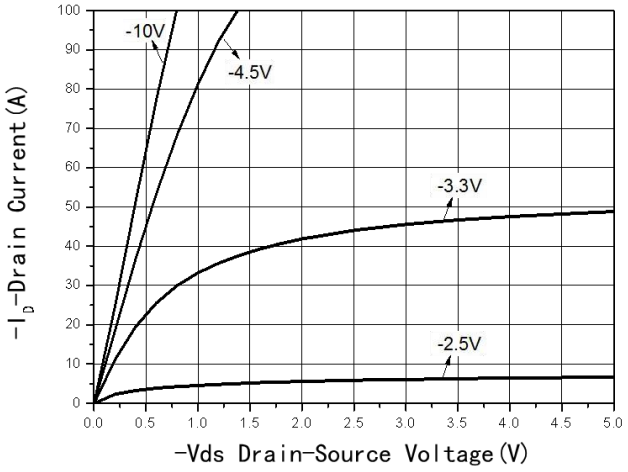


Fig1 Output Characteristics

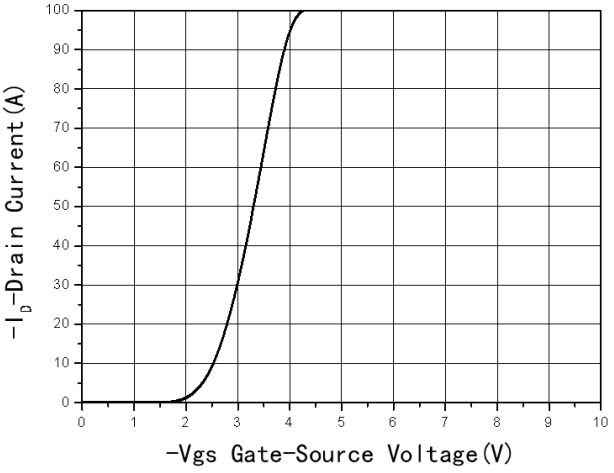


Fig2 Transfer Characteristics

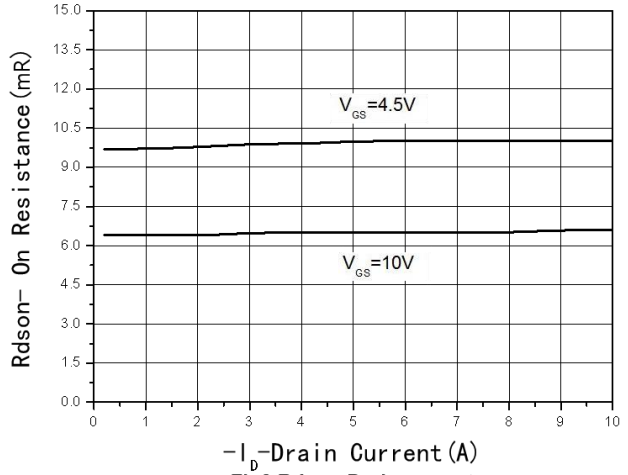


Fig3 Rdson-Drain current

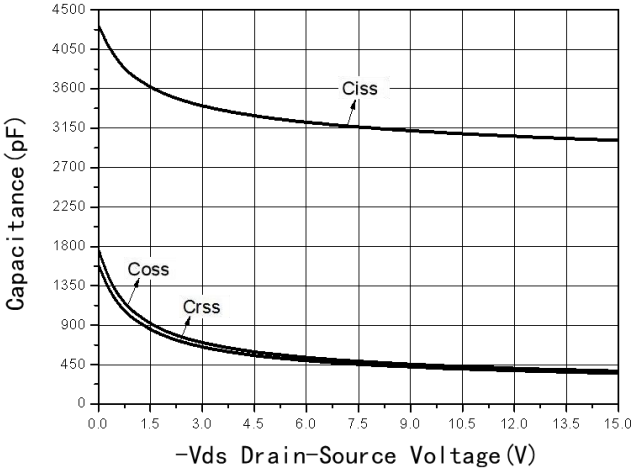


Fig4 Capacitance vs Vds

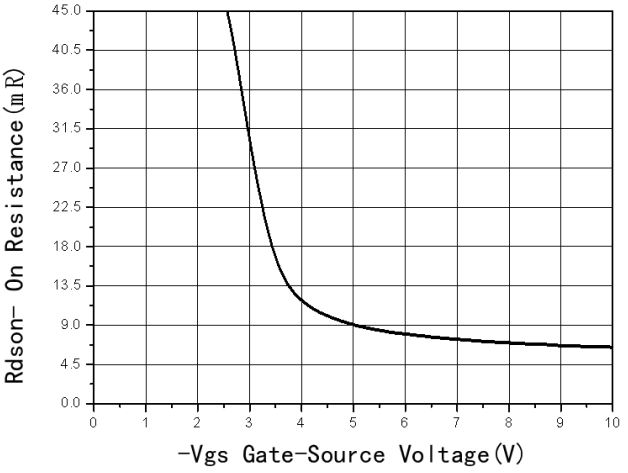


Fig5 Rdson-Gate Drain voltage

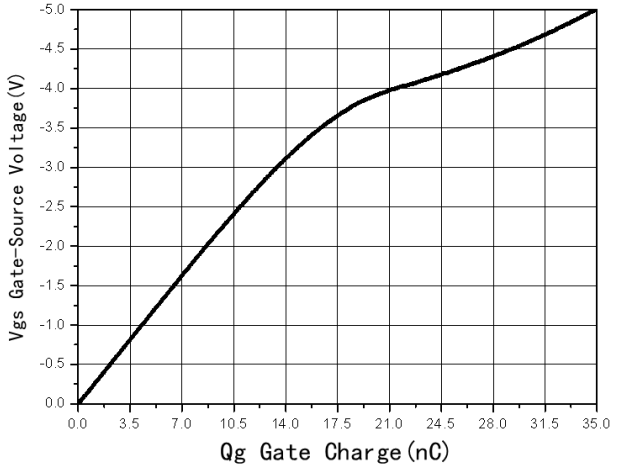


Fig6 Gate Charge

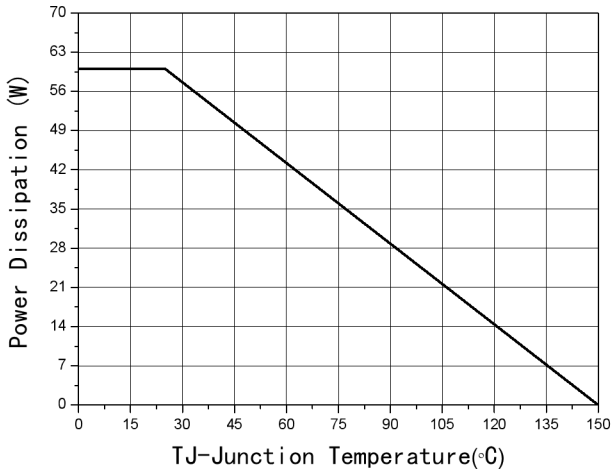


Fig7 Power De-rating

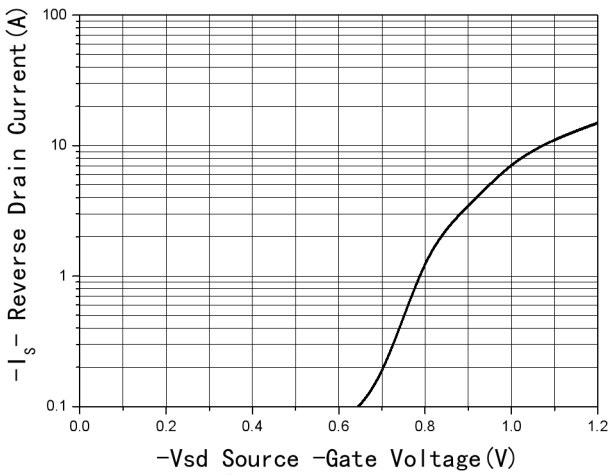
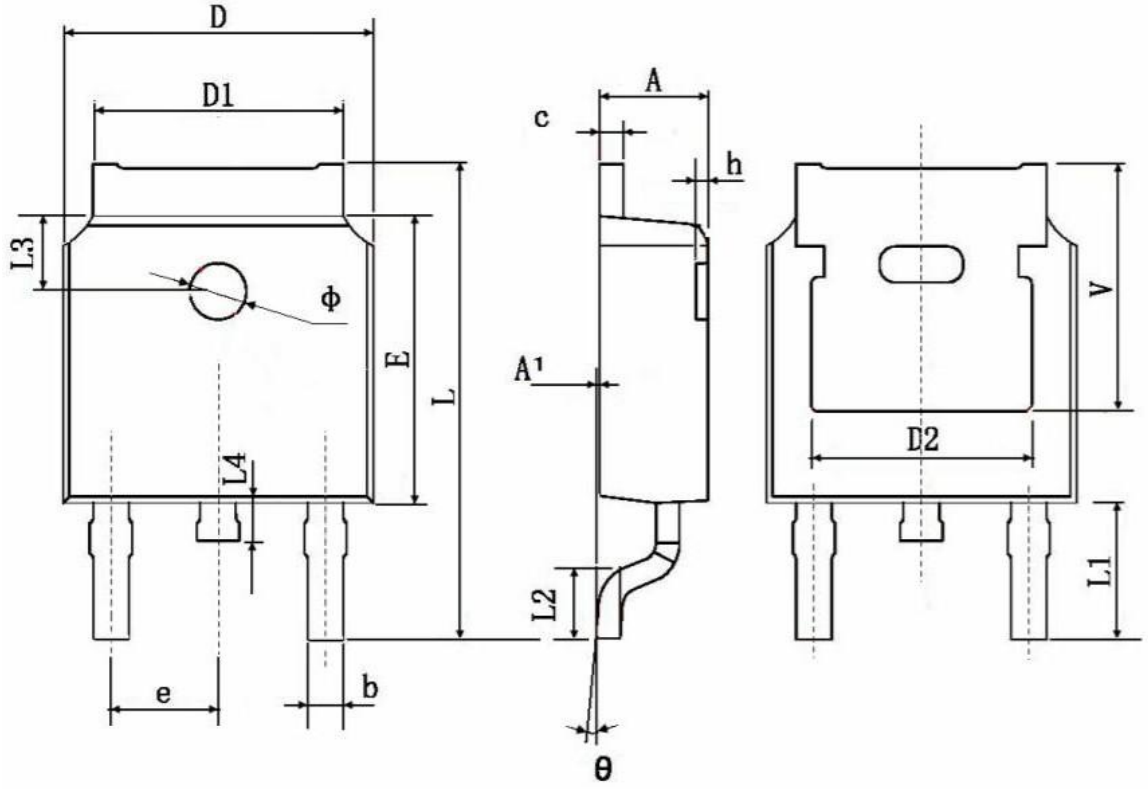


Fig8 Source-Drain Diode Forward

Package Information

- **TO-252-2L**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 TYP.		0.211 TYP.	