MY8P04C

-40V P-Channel Enhancement Mode MOSFET

MAOYUANWEI semiconductor

General Description

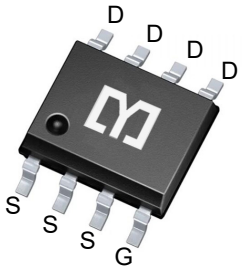
The MY8P04C uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

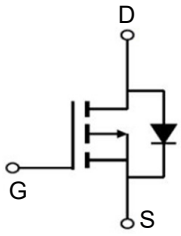
Features

V_{DSS}	-40	V
I_D	-8	A
$R_{DS(ON)}$(atV_{GS}=-10V)	27	mΩ
$R_{DS(ON)}$(atV_{GS}=-4.5V)	38	mΩ

Application

- Battery protection
- Load switch
- Uninterruptible power supply





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY8P04C	SOP-8	MY8P04C	3000

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

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	-40	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±20	V
I_D	Drain Current-Continuous(T_C=25℃)	-8	A
	Drain Current-Continuous(T_C=100℃)	-6.5	A
$I_{DM\ (pluse)}$	(Note 1) Drain Current-Continuous@ Current-Pulsed	-20	A
P_D	Maximum Power Dissipation(T_C=25℃)	37.5	W
	Maximum Power Dissipation(T_C=100℃)	19	W
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 175	℃

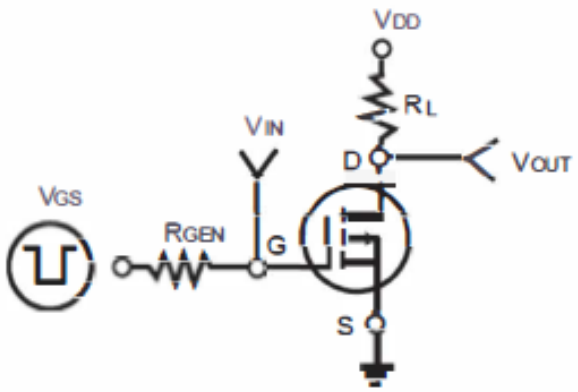
Electrical Characteristics (T_A=25 ℃, unless otherwise noted)

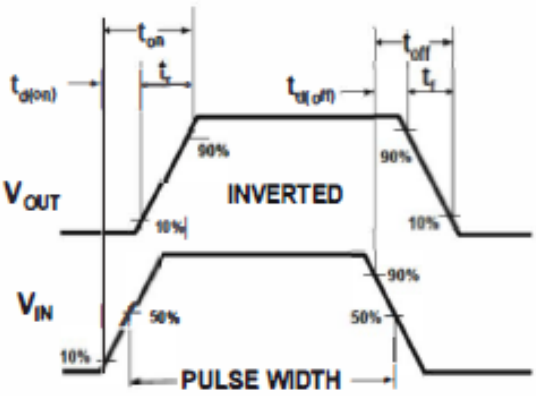
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V I_D=-250μA	-40			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-40V,V_{GS}=0V			-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250μA	-1		-3	V
g_{FS}	Forward Transconductance	V_{DS}=-5V,I_D=-10A		25		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10V, I_D=-12A		27	35	mΩ
		V_{GS}=-4.5V, I_D=-6A		38	54	mΩ
C_{iss}	Input Capacitance	V_{DS}=-15V,V_{GS}=0V, f=1.0MHz		847		pF
C_{oss}	Output Capacitance			125		pF
C_{rss}	Reverse Transfer Capacitance			40		pF
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V, V_{DS}=-20V, R_L=15Ω ,V_{GEN}=-10V VDD=-15V ID=1A R_G=6Ω		35		nS
t_r	Turn-on Rise Time			16		nS
$t_{d(off)}$	Turn-Off Delay Time			56		nS
t_f	Turn-Off Fall Time			8		nS
Q_g	Total Gate Charge	V_{DS}=-20V, V_{GS}=-10V, I_D=-12A		20		nC
Q_{gs}	Gate-Source Charge	V_{DS}=-20V, V_{GS}=-4.5V, I_D=-12A		2.5		nC
Q_{gd}	Gate-Drain Charge			4.5		nC
I_{SD}	Source-Drain Current(Body Diode)				-20	A
V_{SD}	Forward on Voltage	V_{GS}=0V,I_S=-1.7A		-0.8	-1.2	V

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature

Typical Characteristics

Switch Time Test Circuit and Switching Waveforms:





TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure1. Power Dissipation

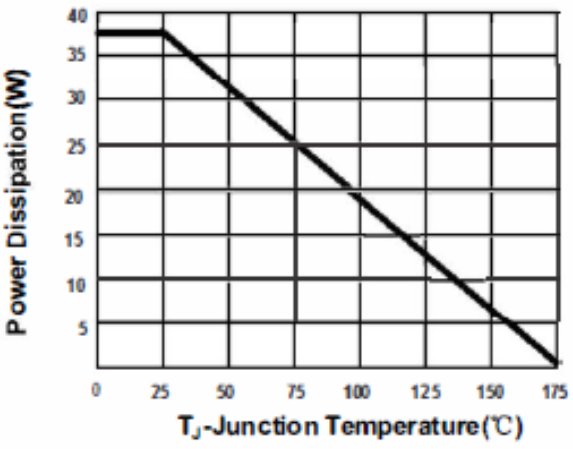


Figure2. Drain Current

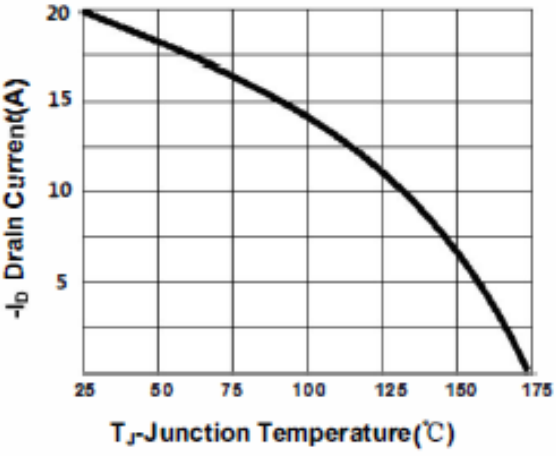


Figure3. Output Characteristics

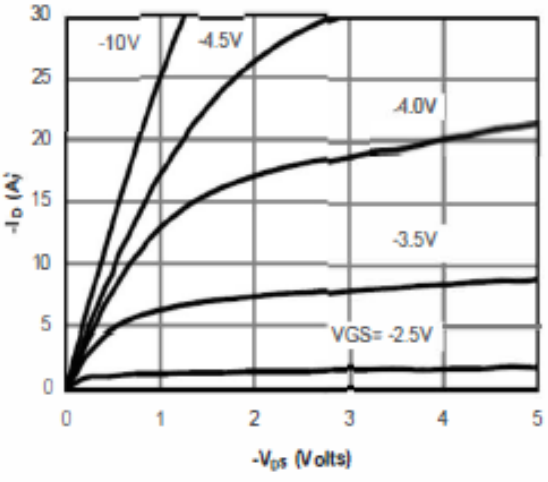


Figure4. Transfer Characteristics

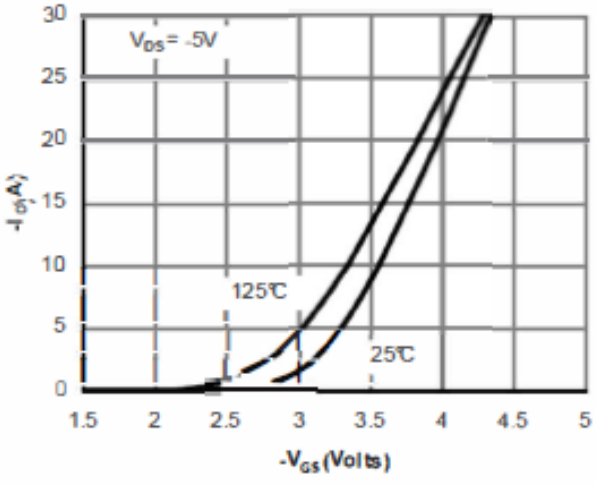


Figure5. Capacitance

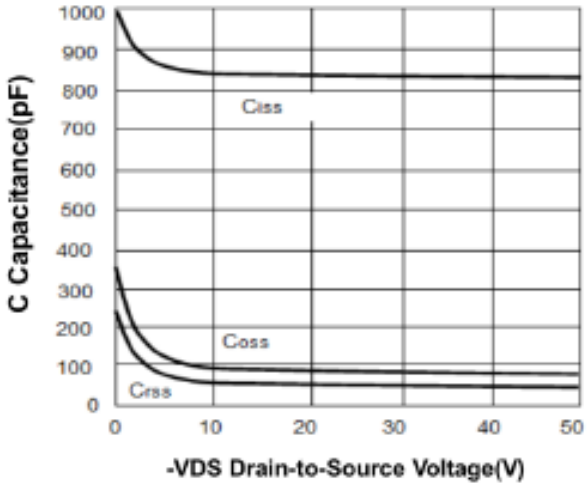


Figure6. $R_{DS(ON)}$ vs Junction Temperature

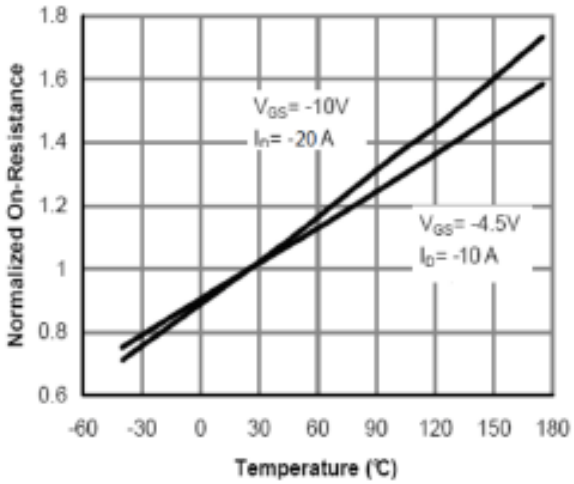


Figure7. $V_{GS(th)}$ vs Junction Temperature

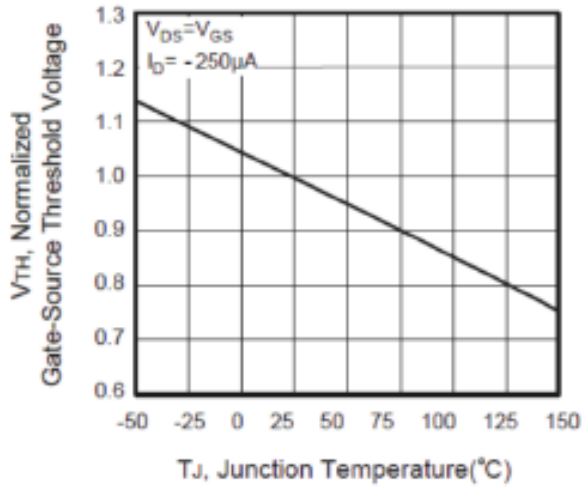


Figure8. Gate Charge Waveforms

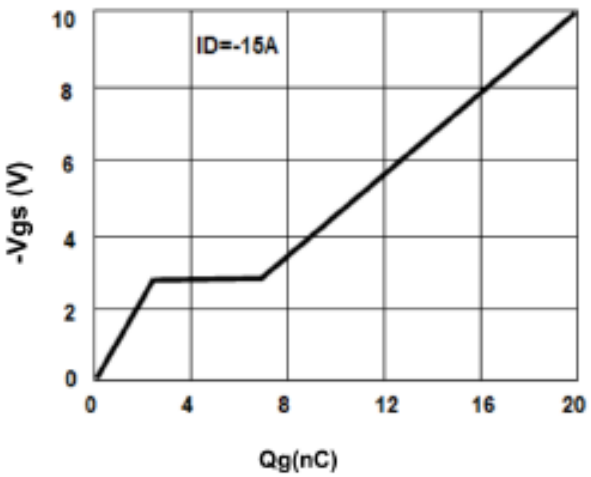
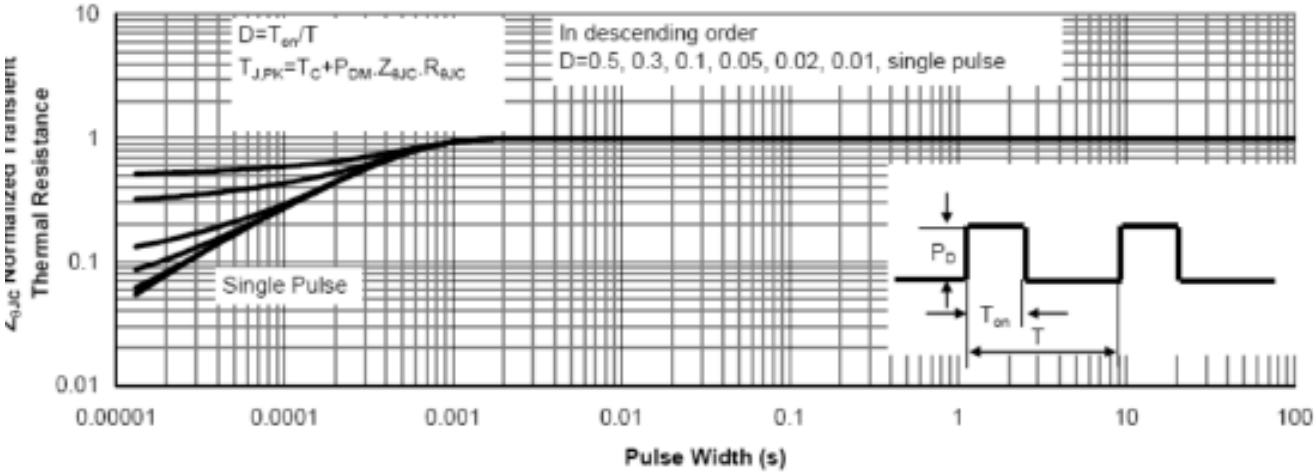
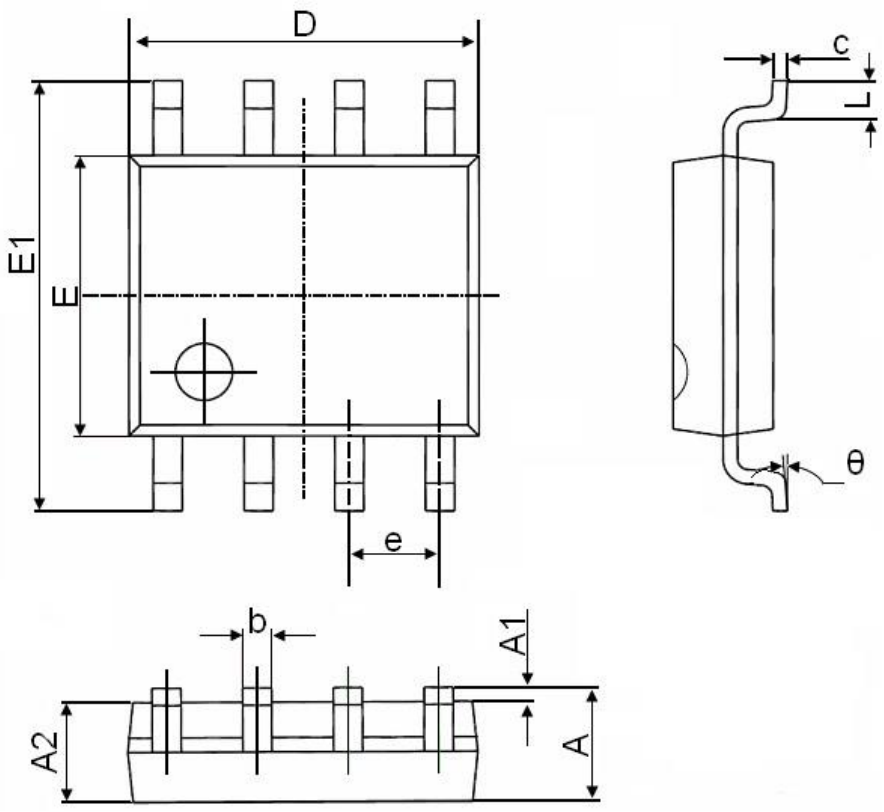


Figure9. Normalized Maximum Transient Thermal Impedance



Package Mechanical Data-SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050