Description

The G6P06 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.

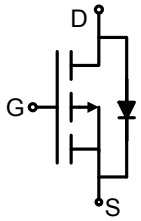
General Features

V_{DSS}	$R_{DS(ON)}$) @-10V (Typ)	$R_{DS(ON}$ @-4.5V(Typ)	I_D
-60V	80mΩ	100mΩ	-4A

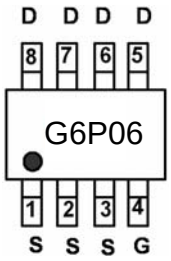
- Super high dense cell design
- Advanced trench process technology
- Reliable and rugged
- High density celldesign for ultra low on-resistance
- RoHS Compliant

Application

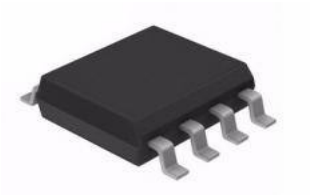
- **Power switch**
- **DC/DC converters**



Schematic diagram



Marking and pin Assignment



SOP-8

Ordering Information

Part Number	Marking	Case	Packaging
G6P06	G6P06	SOP-8	4000pcs/Reel

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Continuous Drain Current		I_D	-4	A
Pulsed Drain Current	(note1)	I_{DM}	-16	A
Gate-Source Voltage		V_{GSS}	±20	V
Single Pulse Avalanche Energy	(note2)	E_{AS}	36	mJ
Avalanche Current		I_{As}	12	A
Power Dissipation (T_C = 25ºC)	(note3)	P_D	3.1	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 To 150	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	40	ºC/W

Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -60V, V_{GS} = 0V, T_J = 25ºC	--	--	-1	μA
		V_{DS} = -60V, V_{GS} = 0V, T_J = 150ºC	--	--	-100	
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.0	-1.8	-3.0	V
Drain-Source On-Resistance (Note3)	$R_{DS(on)}$	V_{GS} = -10V, I_D = -4A	--	80	96	mΩ
		V_{GS} = -4.5V, I_D = -3A	--	100	145	mΩ
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -30V, f = 1.0MHz	--	976	--	pF
Output Capacitance	C_{oss}		--	70	--	
Reverse Transfer Capacitance	C_{rss}		--	30	--	
Total Gate Charge	Q_g	V_{DD} = -30V, I_D = -4A, V_{GS} = -10V	--	24	--	nC
Gate-Source Charge	Q_{gs}		--	2.2	--	
Gate-Drain Charge	Q_{gd}		--	3.6	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -30V, I_D = -4A, R_G = 2.5Ω	--	10	--	ns
Turn-on Rise Time	t_r		--	5	--	
Turn-off Delay Time	$t_{d(off)}$		--	35	--	
Turn-off Fall Time	t_f		--	9	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	-4	A
Pulsed Diode Forward Current	I_{SM}		--	--	-16	
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -4A, V_{GS} = 0V	--	--	-1.2	V
Reverse Recovery Time	t_{rr}	I_F = -4A, di_F/dt = 100A/μs	--	36	--	ns
Reverse Recovery Charge	Q_{rr}		--	38	--	nC

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. VDD = -50V, RG = 25Ω, Starting TJ = 25°C，L=0.5mH
3. The power dissipation PD is based on TJ(MAX)=150°C, using junction-to-case thermal resistance.

Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

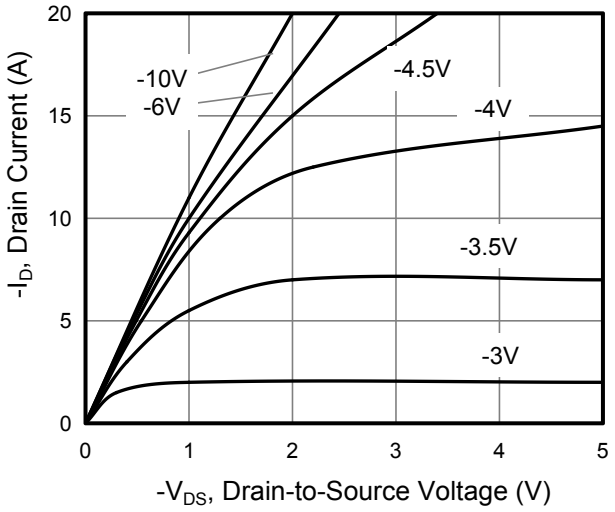


Figure 2. Transfer Characteristics

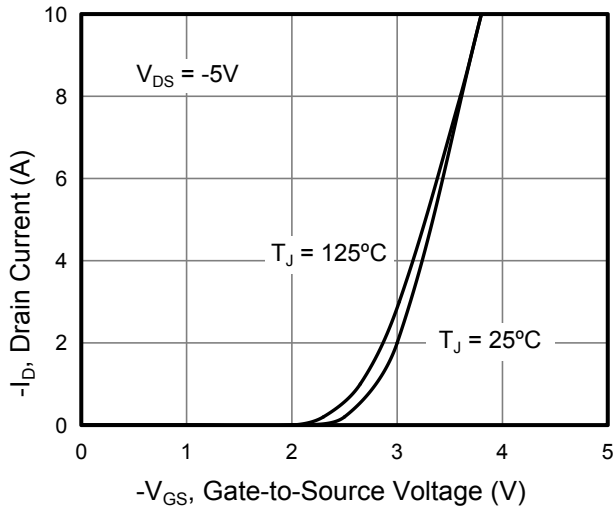


Figure 3. On-Resistance vs. Drain Current

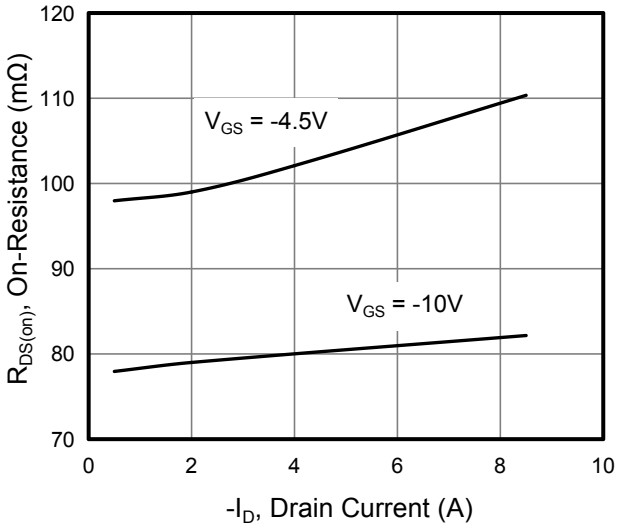


Figure 4. On-Resistance vs. Junction Temperature

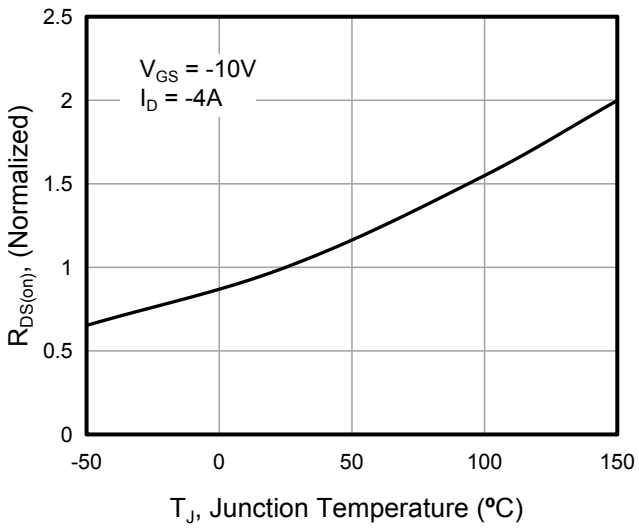


Figure 5. Threshold Voltage vs. Junction Temperature

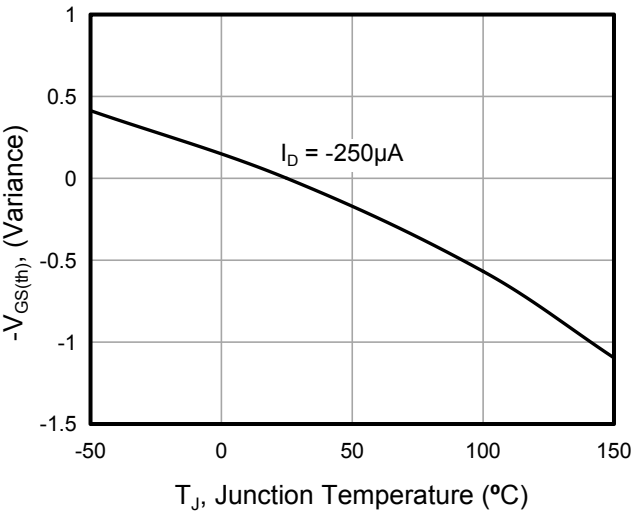
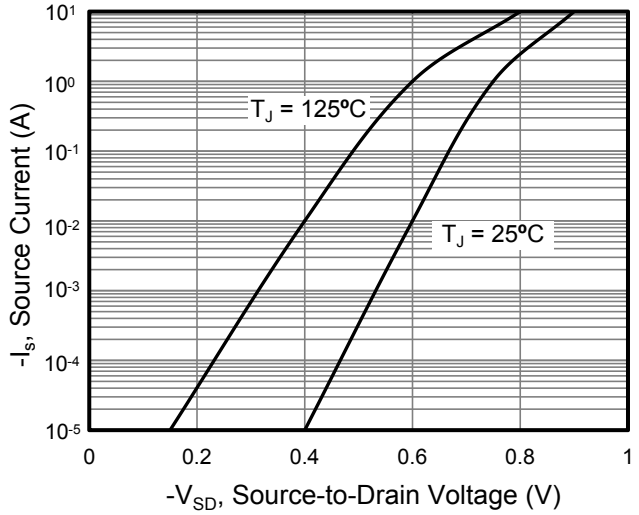


Figure 6. Body Diode Forward Voltage



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Capacitance

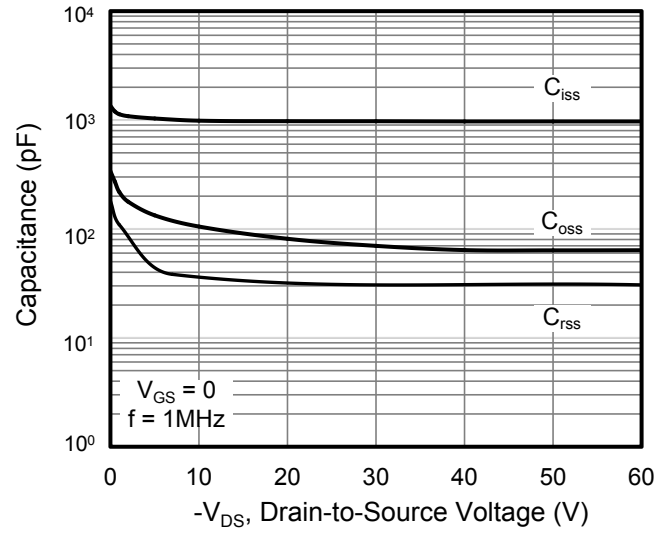


Figure 8. Gate Charge

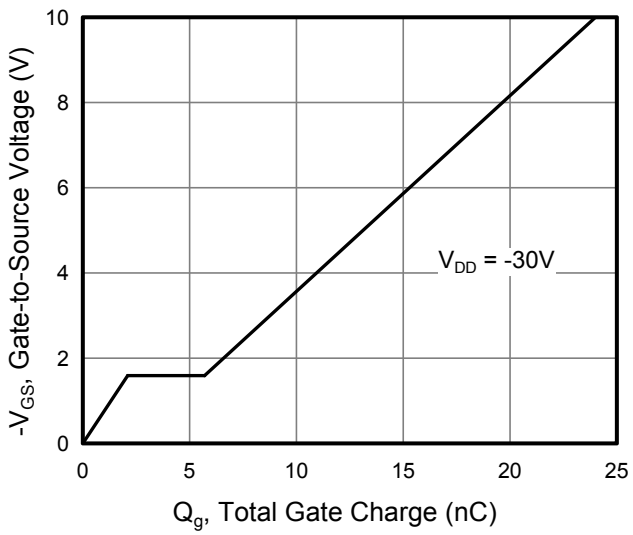


Figure 9. Transient Thermal Impedance

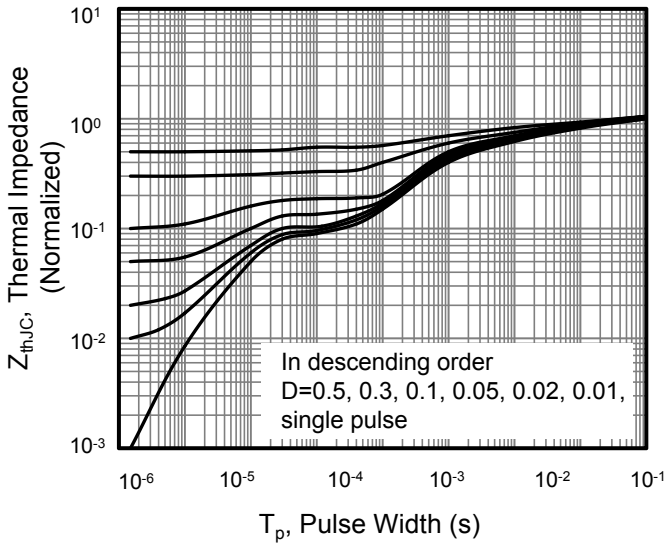
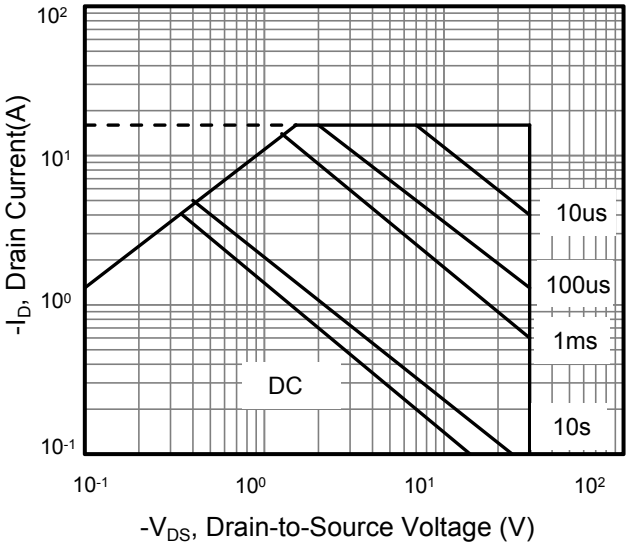
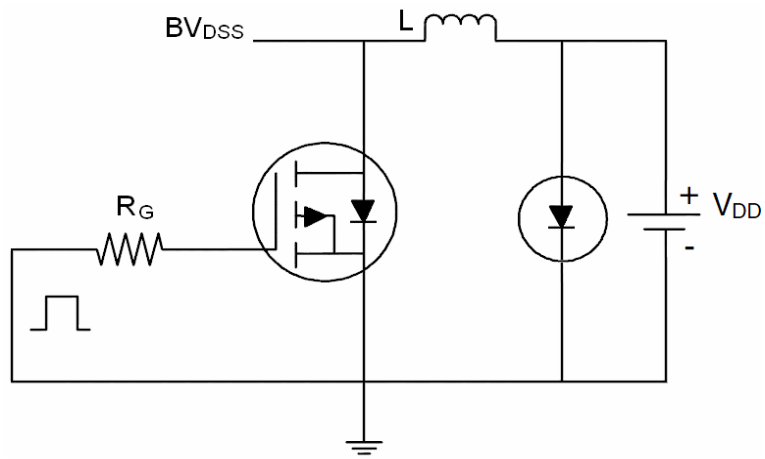


Figure 10. Safe Operating Area

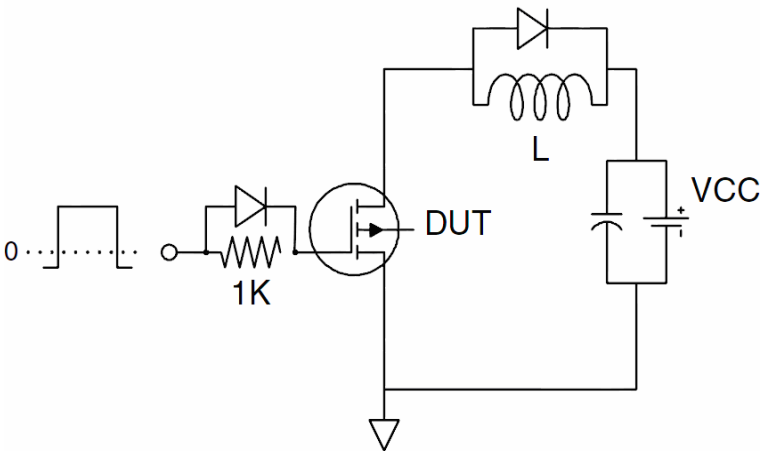


Test Circuit

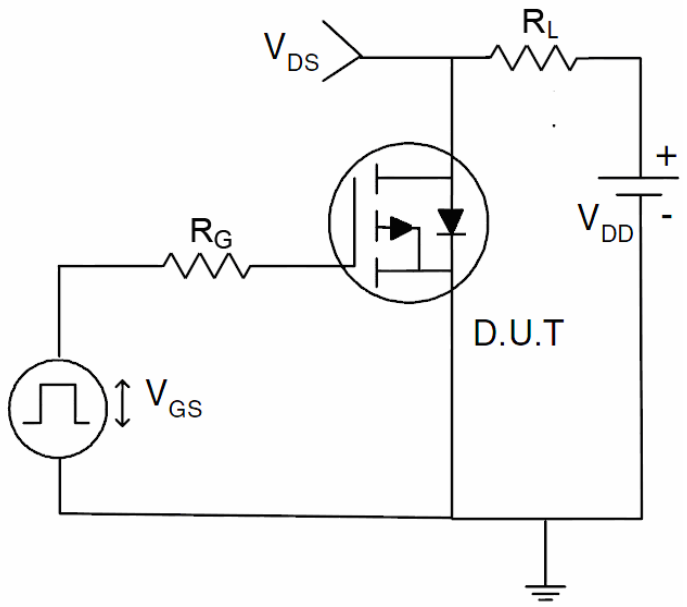
1) E_{AS} Test Circuit



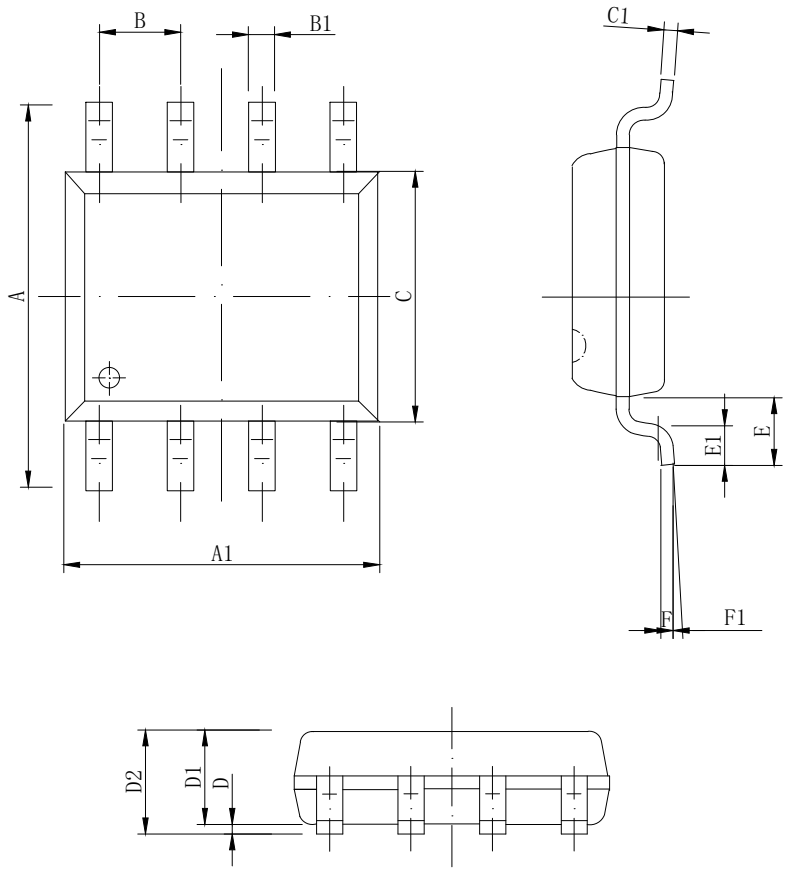
2) Gate Charge Test Circuit



3) Switch Time Test Circuit



SOP-8 Package information



DIM	MIN	NOM	MAX
A	5.800	6.000	6.200
A1	4.800	4.900	5.000
B		1.270BSC	
B1	0.35 ^ 8x	0.40 ^ 8x	0.45 ^ 8x
C	3.780	3.880	3.980
C1	-	0.203	0.253
D	0.050	0.150	0.250
D1	1.350	1.450	1.550
D2	1.500	1.600	1.700
E		1.060 REF	
E1	0.400	0.700	0.100
F		0.250BSC	
F1	2°	4°	6°

All Dimensions in mm