P-Channel Enhancement Mode Power MOSFET

Description

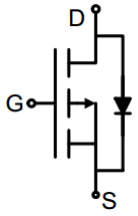
The G06P10H uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge. It can be used in a wide variety of applications.

General Features

- V_{DS} -100V
- I_D (at V_{GS} = -10V) -6A
- $R_{DS(ON)}$ (at V_{GS} = -10V) < 205mΩ
- $R_{DS(ON)}$ (at V_{GS} = -4.5V) < 250mΩ
- 100% Avalanche Tested
- RoHS Compliant

Application

- Power switch
- DC/DC converters



Schematic diagram

SOT-223

Device	Package	Marking	Packaging
G06P10H	SOT-223	G06P10	4000pcs/Reel

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Continuous Drain Current	I_D	-6	A
Pulsed Drain Current (note1)	I_{DM}	-24	A
Gate-Source Voltage	V_{GS}	±16	V
Power Dissipation	P_D	1.25	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}	100	ºC/W

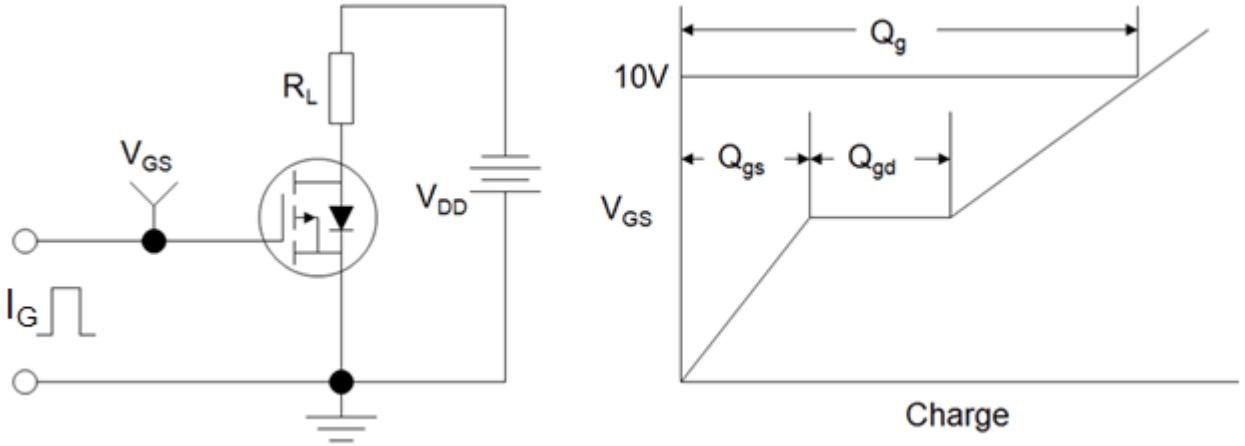
Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -100V, V_{GS} = 0V	--	--	-1	uA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±16V	--	--	±10	uA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	-1.2	-1.75	-2.8	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = -10V, I_D = - 6A	--	185	205	mΩ
		V_{GS} = -4.5V, I_D = - 6A	--	210	250	
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=-5A	10	--	--	S
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -25V, f = 1.0MHz	--	760	--	pF
Output Capacitance	C_{oss}		--	260	--	
Reverse Transfer Capacitance	C_{rss}		--	170	--	
Total Gate Charge	Q_g	V_{DD} = -50V, I_D = -6A, V_{GS} = -10V	--	25	--	nC
Gate-Source Charge	Q_{gs}		--	5	--	
Gate-Drain Charge	Q_{gd}		--	7	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = -50V, I_D = -6A, R_G = 9Ω	--	14	--	ns
Turn-on Rise Time	t_r		--	18	--	
Turn-off Delay Time	$t_{d(off)}$		--	50	--	
Turn-off Fall Time	t_f		--	18	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25ºC	--	--	-13	A
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = -6A, V_{GS} = 0V	--	--	-1.2	V
Reverse Recovery Time	T_{rr}	I_S = -12A, V_{GS} = 0V di/dt=-100A/us	--	35	--	ns
Reverse Recovery Charge	Qrr		--	46	--	ns

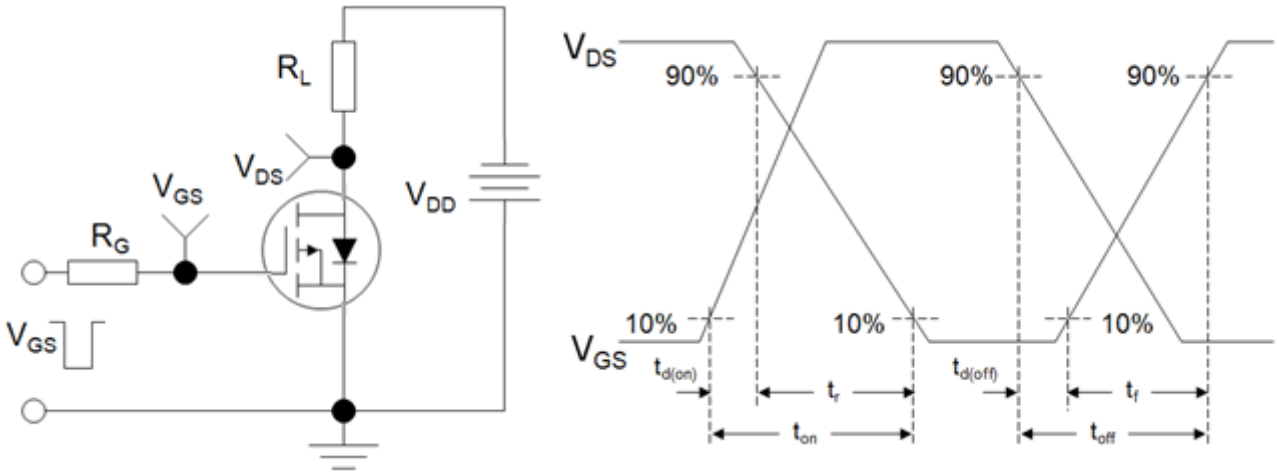
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

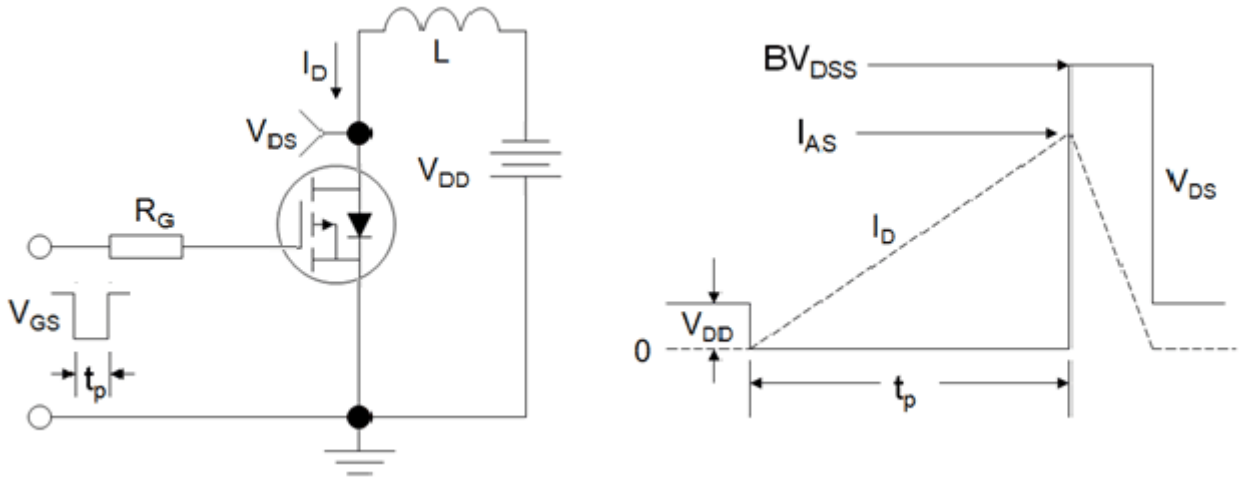
Gate Charge Test Circuit



Switch Time Test Circuit



EAS Test Circuit



Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics

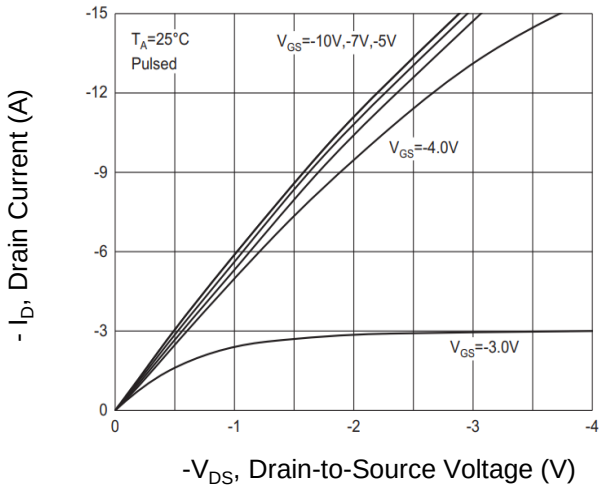


Figure 2. Transfer Characteristics

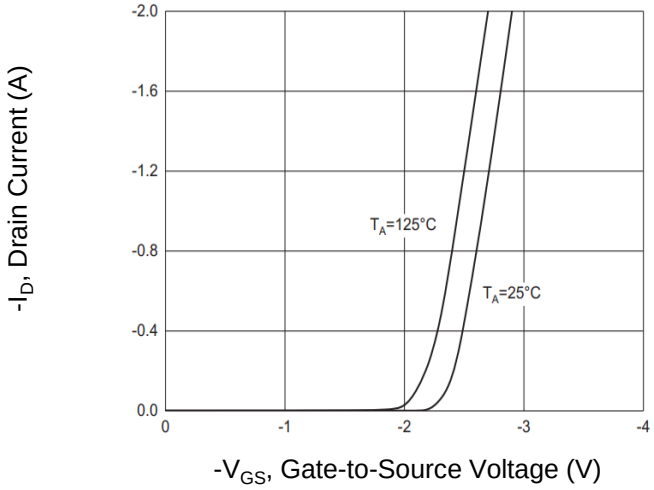


Figure 3. Gate Charge

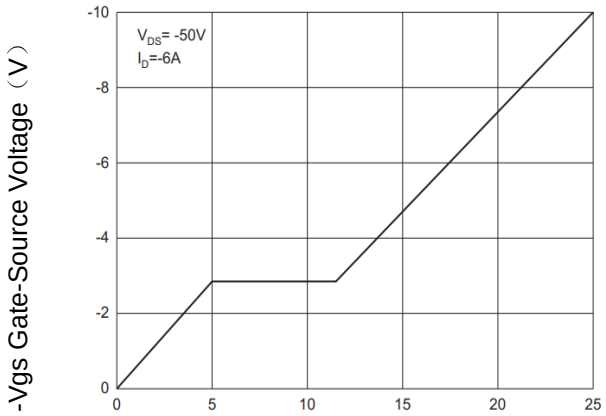


Figure 4. Drain Source On Resistance

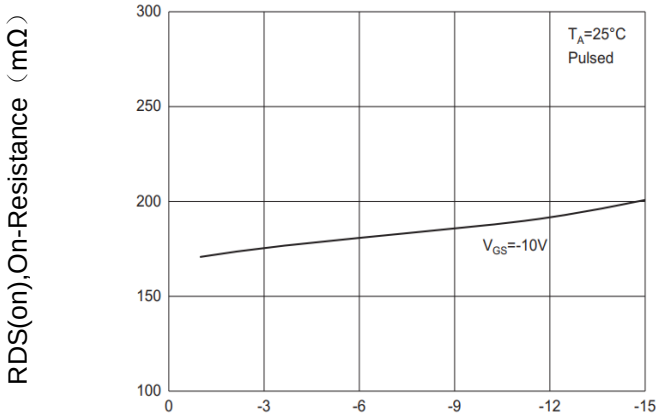


Figure 5. Safe Operation Area

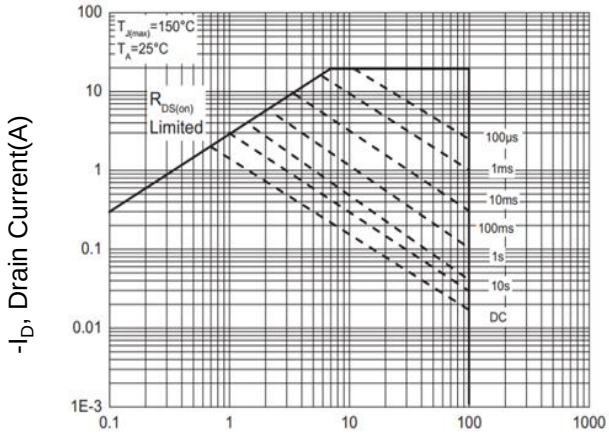
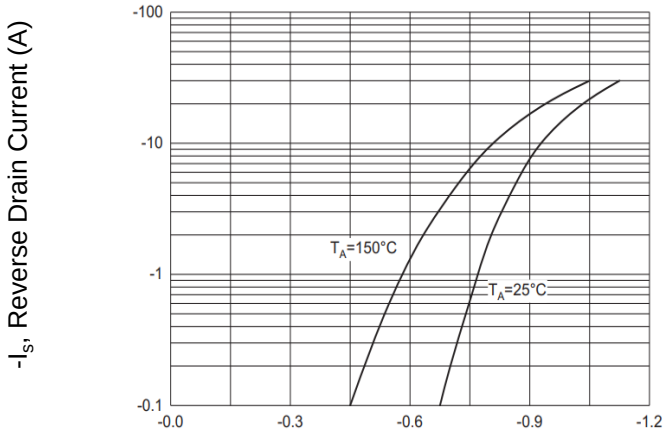
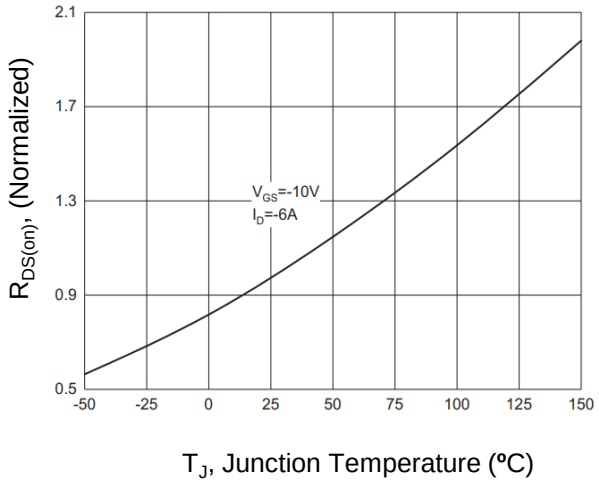


Figure 6. Source-Drain Diode

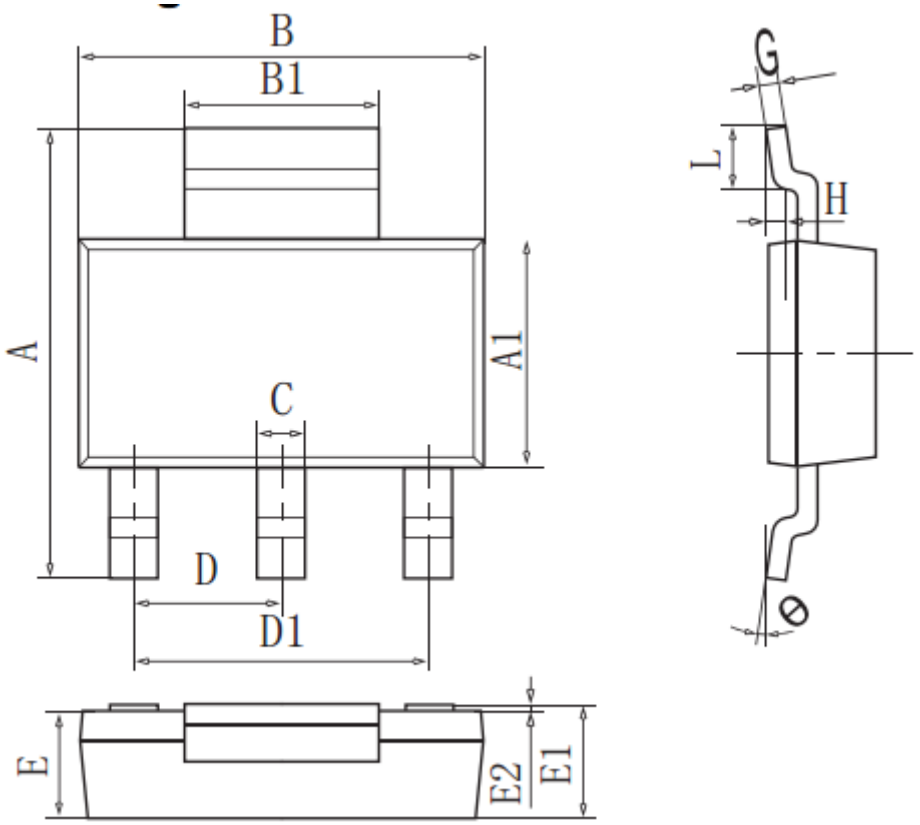


Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 7. Drain-Source On-Resistance



SOT-223-3L Package Information



DIM	MIN	NOM	MAX
A	6.80	7.00	7.20
A1	3.30	3.50	3.70
B	6.40	6.60	6.80
B1	2.96	3.00	3.10
C	0.66	0.70	0.80
D	2.25	2.30	2.35
D1		4.60REF	
E	1.50	1.60	1.70
E1		1.65REF	
E2	0.02	0.06	0.10
G	0.255	0.305	0.355
H		0.25GAUGR	
L	0.90	-	-
θ	0°	-	10°
All Dimensions in mm			