

DP3407Q

DP3407Q P-Channel Enhancement Mode Field Effect Transistor

General description

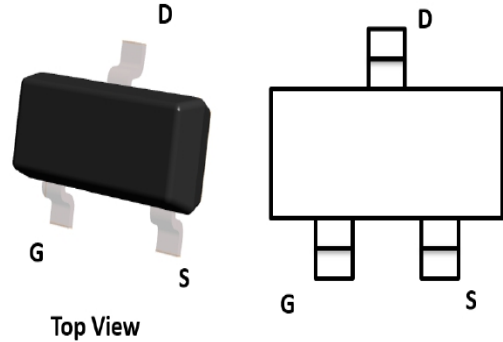
P-Channel Enhancement Mode Field Effect Transistor

Features:

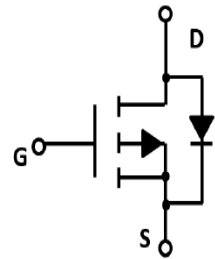
- V_{DS} (V) = -30V
- I_D = -4.1 A
- $R_{DS(ON)} < 60m\Omega$ ($V_{GS} = -10V$)
- $R_{DS(ON)} < 90m\Omega$ ($V_{GS} = -4.5V$)
- Trench Power LV MOSFET technology
- High density cell design for Low RDS(ON)
- High Speed switching
- Battery protection
- Load switch
- Power management

Device Marking:

Device Type	Marking	Shipping
DP3407Q	A7**	3,000/Reel



SOT-23-3L



Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Parameter	Symbol	Maximum	Unit
Drain-source Voltage	V_{DS}	-30	V
Gate-source Voltage	V_{GS}	± 20	V
Drain Current	$T_A = 25^\circ\text{C}$ @ Steady State	-4.1	A
	$T_A = 70^\circ\text{C}$ @ Steady State	-3.2	
Pulsed Drain Current ^A	I_{DM}	-15	A
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_D	1.5	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B	$R_{\theta JA}$	82	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
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, T _C =25°C			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V			±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1.0	-1.6	-2.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = -10V, I _D =-4.1A		40	60	mΩ
		V _{GS} = -4.5V, I _D =-3.5A		55	90	
Diode Forward Voltage	V _{SD}	I _S =-4.1A, V _{GS} =0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I _S				-4.1	A
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHZ		580		pF
Output Capacitance	C _{oss}			98		
Reverse Transfer Capacitance	C _{rss}			74		
Switching Parameters						
Total Gate Charge	Q _g	V _{GS} =-10V, V _{DS} =-15V, I _D =-4.1A		6.8		nC
Gate Source Charge	Q _{gs}			1.0		
Gate Drain Charge	Q _{gd}			1.4		
Turn-on Delay Time	t _{D(on)}	V _{GS} =-10V, V _{DD} =-15V, R _L =15 Ω, I _D =-1A, R _{GEN} =2.5Ω		14		ns
Turn-on Rise Time	t _r			61		
Turn-off Delay Time	t _{D(off)}			19		
Turn-off Fall Time	t _f			10		

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

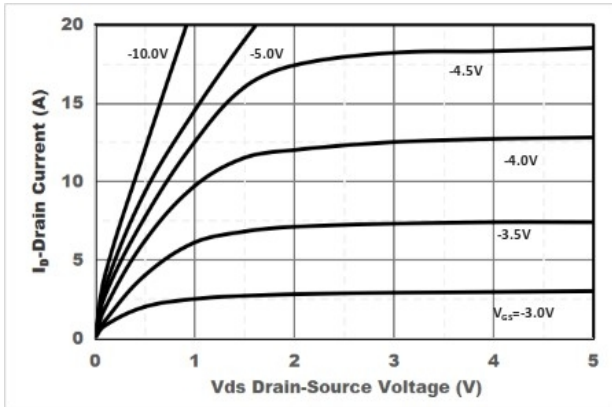


Figure1. Output Characteristics

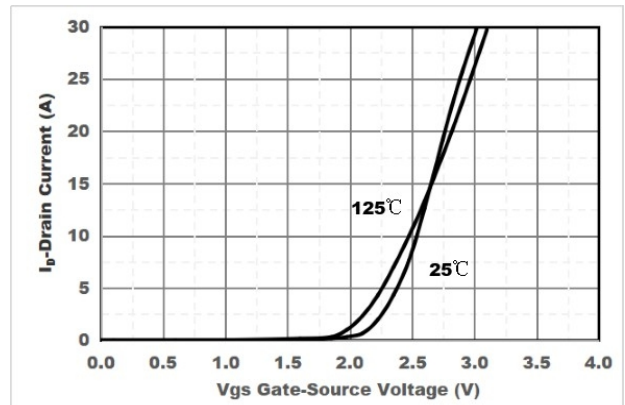


Figure2. Transfer Characteristics

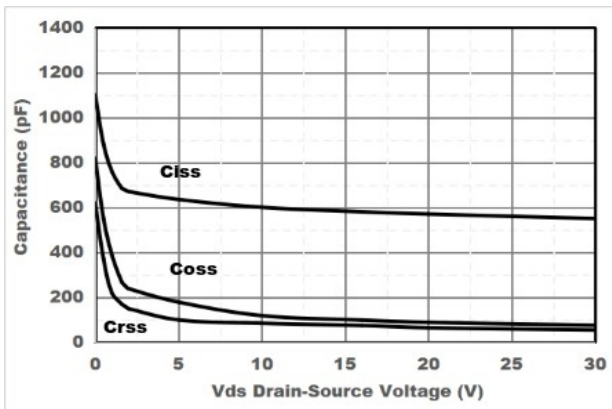


Figure3. Capacitance Characteristics

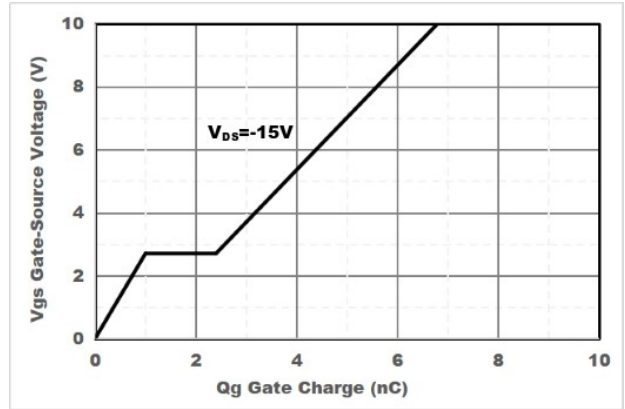


Figure4. Gate Charge

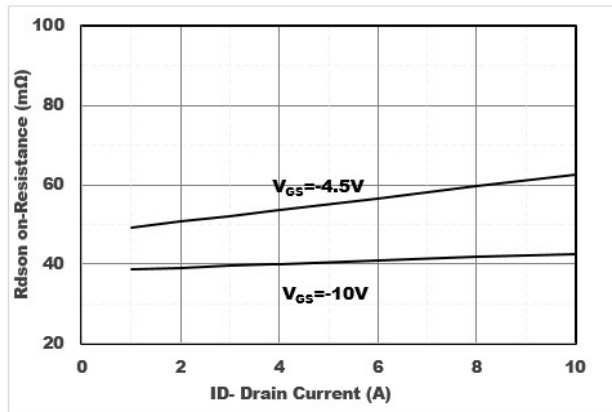


Figure5. Drain-Source on Resistance

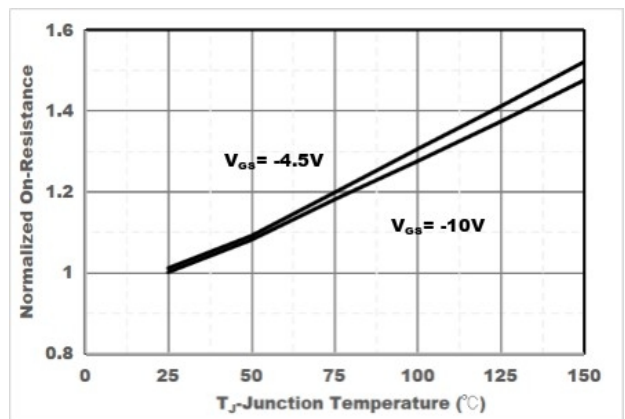


Figure6. Drain-Source on Resistance

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