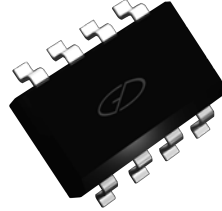
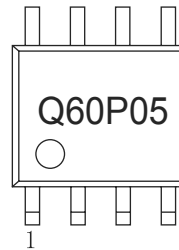


Main Product Characteristics

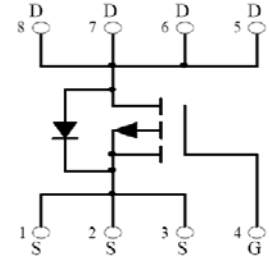
$V_{(BR)DSS}$	-60V
$R_{DS(on)MAX}$	80mΩ@10V
I_D	-5 A



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Marking and Pin Assignment



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for battery operated systems, load switching, power converters and other general purpose applications
- Low on-resistance with low gate charge
- Fast switching and excellent heat dissipation



Description

The SSFQ60P05 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous	I _D	-5	A
Pulsed Drain Current(Note 1)	I _{DM}	-25	A
Operating Junction	T _J	150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C
Lead Temperature for Soldering Purposes(1/8" form case for 10s)	T _L	260	°C
Thermal Resistance ,Junction-to-Ambient(Note 2)	R _{θJA}	100	°C/W

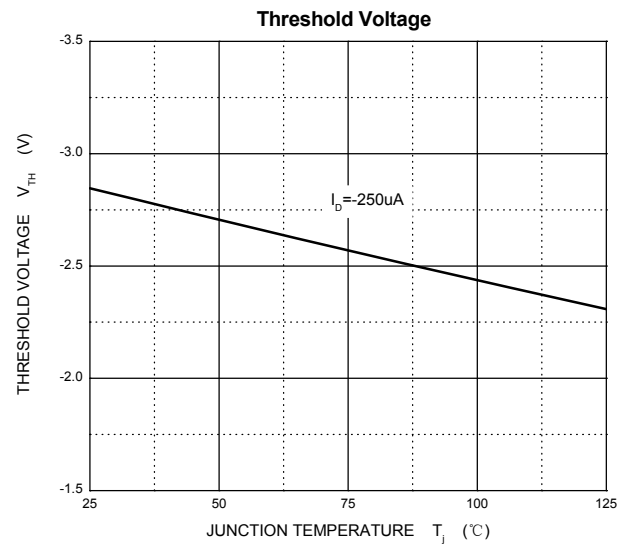
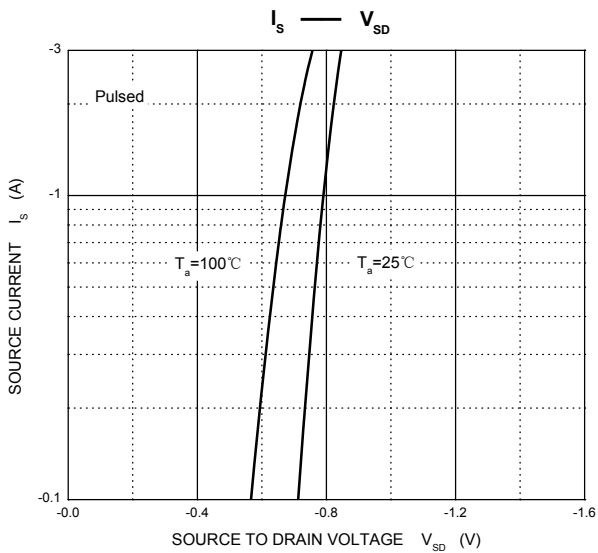
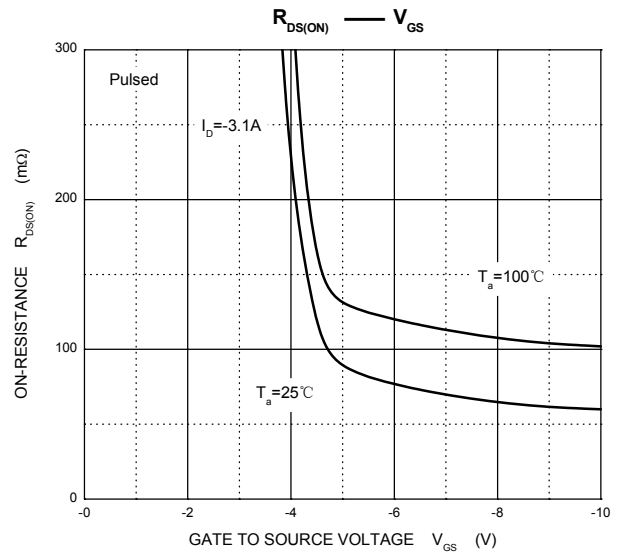
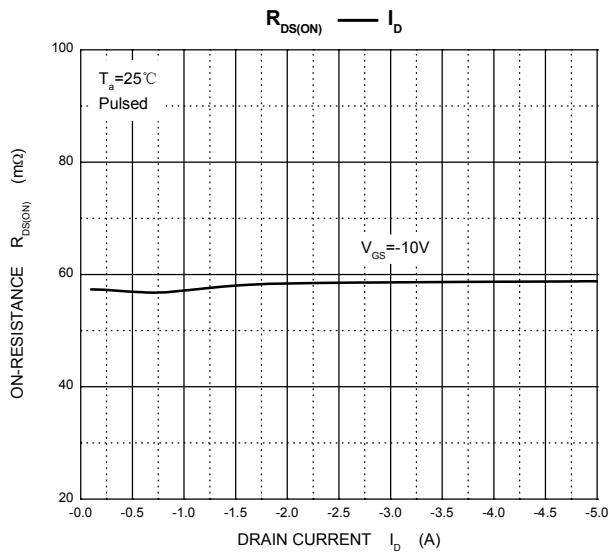
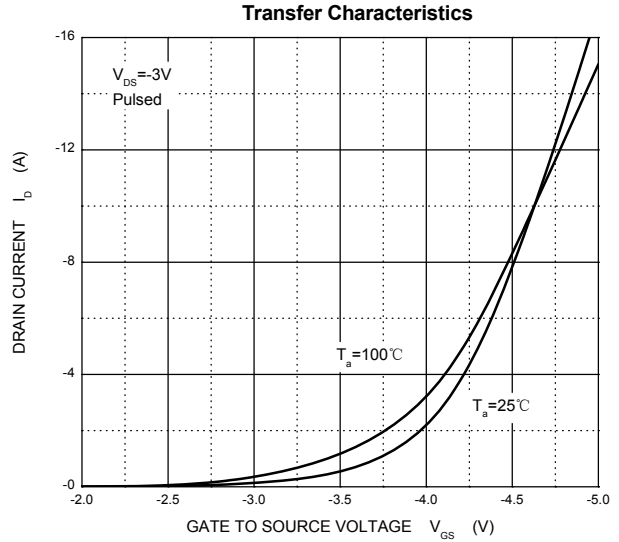
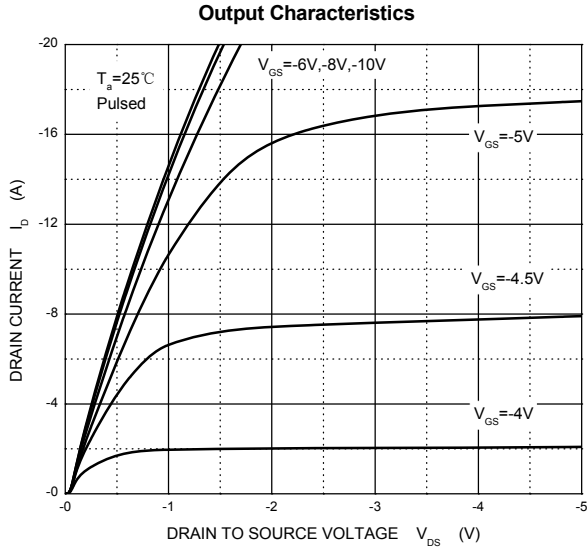
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.5	-	-3.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-5A$	-	-	80	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-15V, I_D=-5A$	5	-	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V,$ $f=1.0\text{MHz}$	-	1450	-	pF
Output Capacitance	C_{oss}		-	145	-	pF
Reverse Transfer Capacitance	C_{rss}		-	110	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=30\Omega$ $V_{GS}=-10V, R_{GEN}=6\Omega$	-	8	-	ns
Turn-on Rise Time	t_r		-	9	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	65	-	ns
Turn-Off Fall Time	t_f		-	30	-	ns
Total Gate Charge	Q_g	$V_{DS}=-30V, I_D=-5A,$ $V_{GS}=-10V$	-	26	-	nC
Gate-Source Charge	Q_{gs}		-	4.5	-	nC
Gate-Drain Charge	Q_{gd}		-	7	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	$V_{GS}=0V, I_S=-3A$	-	-	-1.2	V
Diode Forward Current (Note 2)	I_S		-	-	-5	A

Notes:

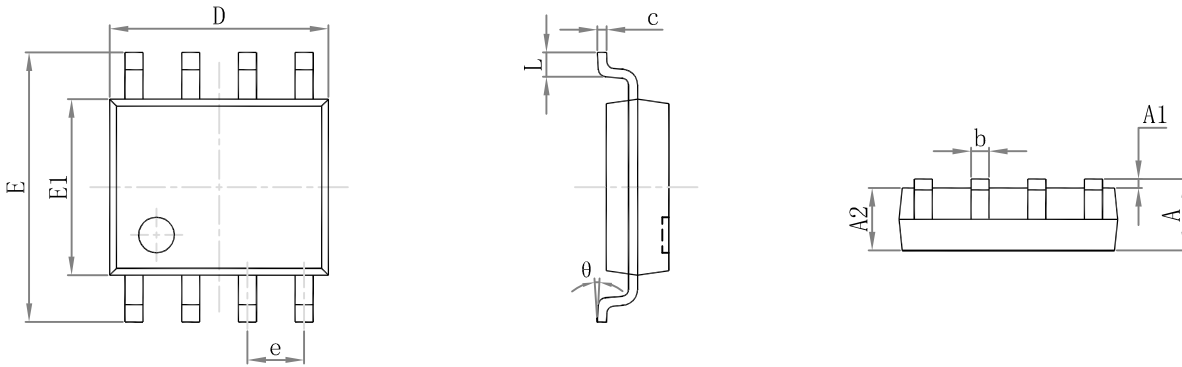
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Typical Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise specified)



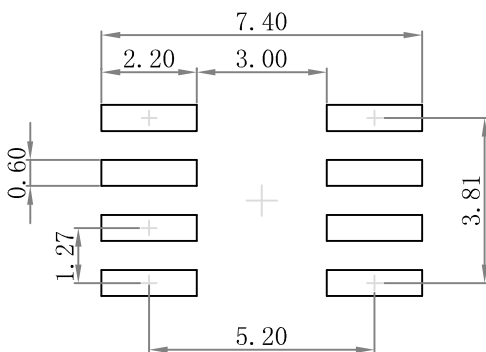
Package Outline Dimensions

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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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.