Elektronische Bauelemente

STT3405P

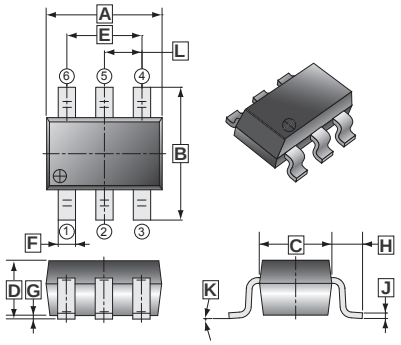
-4.9 A, -20 V, $R_{DS(ON)}$ 56 mΩ
P-Channel Enhancement Mode MOSFET

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are PWMDC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

TSOP-6



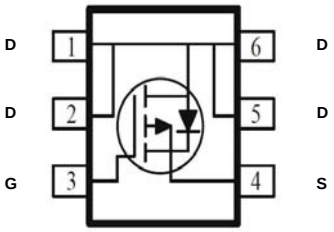
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60 REF.	
C	1.40	1.80	J	0.12 REF.	
D	1.10 MAX.		K	0°	10°
E	1.90 REF.		L	0.95 REF.	
F	0.30	0.50			

FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Miniature TSOP-6 surface mount package saves board space.
- High power and current handling capability.

PACKAGE INFORMATION

Package	MPQ	LeaderSize
TSOP-6	3K	7' inch



ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current [1]	T_A= 25°C	I_D	-4.9	A
	T_A= 70°C		-4.0	
Pulsed Drain Current [2]		I_{DM}	-20	A
Continuous Source Current (Diode Conduction) [1]		I_S	-1.7	A
Power Dissipation [1]	T_A= 25°C	P_D	2	W
	T_A= 70°C		1.3	
Operating Junction and Storage Temperature Range		Tj, Tstg	-55 ~ 150	°C
Thermal Resistance Ratings				
Maximum Junction to Ambient [1]	t ≦ 5 sec	$R_{\theta JA}$	62.5	°C / W
			110	

Notes:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	-0.7	-	-	V	V_{DS}= V_{GS}, I_D= -250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±12V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -16V, V_{GS}= 0V
		-	-	-5		V_{DS}= -16V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(on)}$	-15	-	-	A	V_{DS} = -4.5V, V_{GS}= -4.5V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	56	mΩ	V_{GS}= -4.5V, I_D= -4.9A
		-	-	80		V_{GS}= -2.5V, I_D= -4.2A
		-	-	150		V_{GS}= -1.8V, I_D= -3.1A
Forward Transconductance [1]	g_{fs}	-	11	-	S	V_{DS}= -10V, I_D= -4.9A
Diode Forward Voltage	V_{SD}	-	-0.8	-	V	I_S= 1.7A, V_{GS}= 0V
Dynamic [2]						
Total Gate Charge	Q_g	-	8	-	nC	V_{DS}= -10V, V_{GS}= -4.5V, I_D= -4.9A
Gate-Source Charge	Q_{gs}	-	1.8	-		
Gate-Drain Charge	Q_{gd}	-	1.9	-		
Turn-on Delay Time	$T_{d(on)}$	-	22	-	nS	V_{DD}= -10V, V_{GEN}= -4.5V, R_L= 6Ω, I_D= -1A
Rise Time	T_r	-	35	-		
Turn-off Delay Time	$T_{d(off)}$	-	45	-		
Fall Time	T_f	-	25	-		

Notes:
1. Pulse test：PW ≦ 300 us duty cycle ≦ 2%.
2. Guaranteed by design, not subject to production testing.

CHARACTERISTICS CURVE

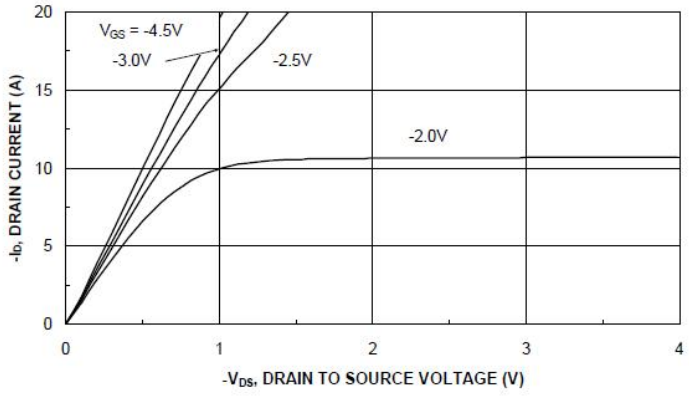


Figure 1. Output Characteristics

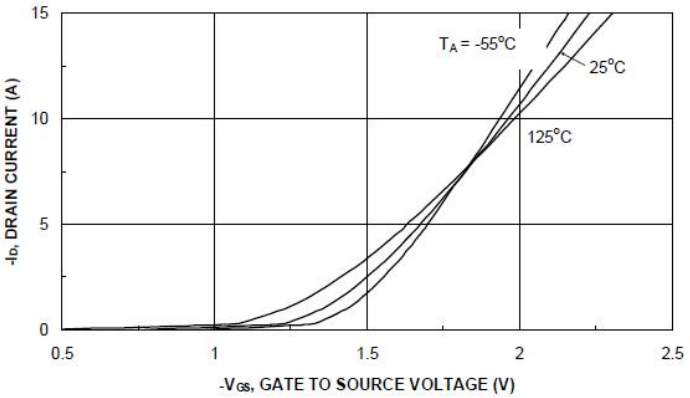


Figure 2. Transfer Characteristics

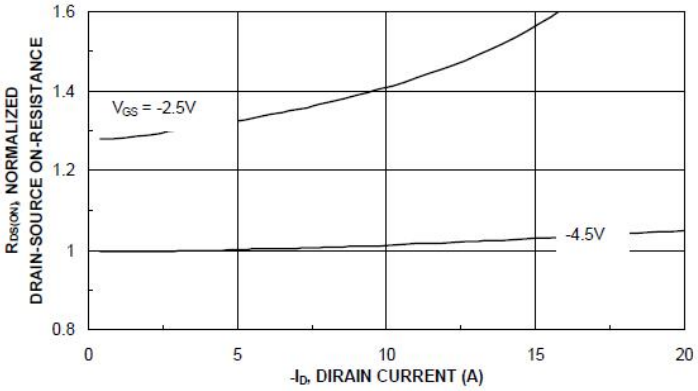


Figure 3. On-Resistance vs. Drain Current

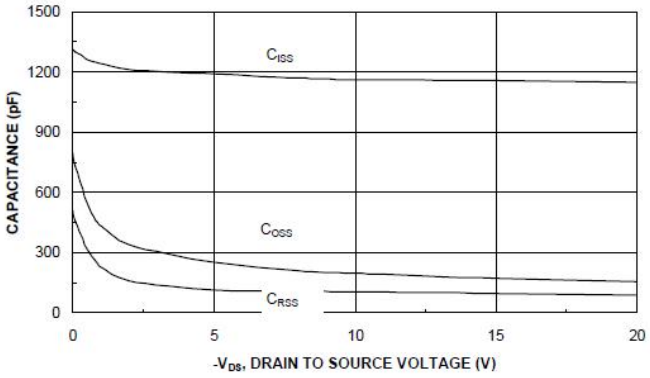


Figure 4. Capacitance

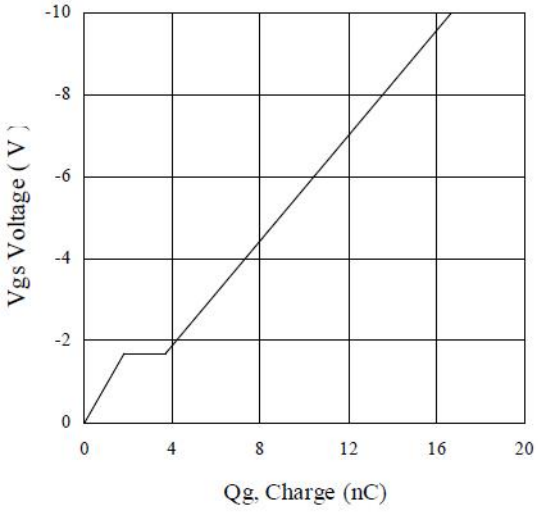


Figure 5. Gate Charge

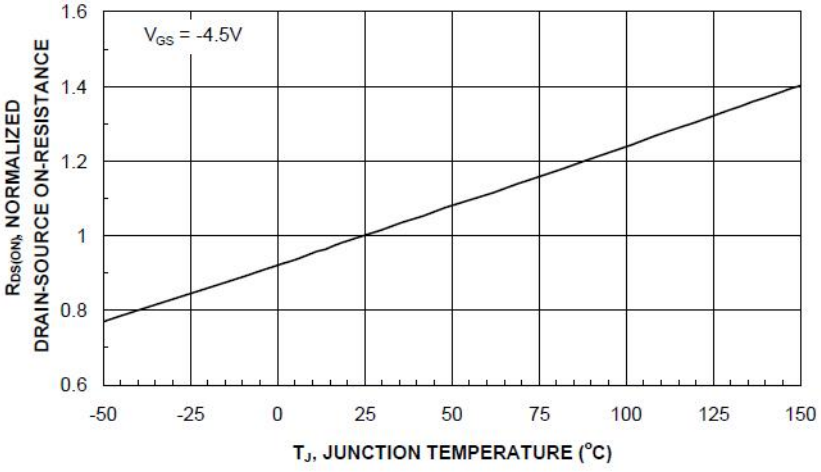


Figure 6. On-Resistance vs. Junction Temperature

CHARACTERISTICS CURVE

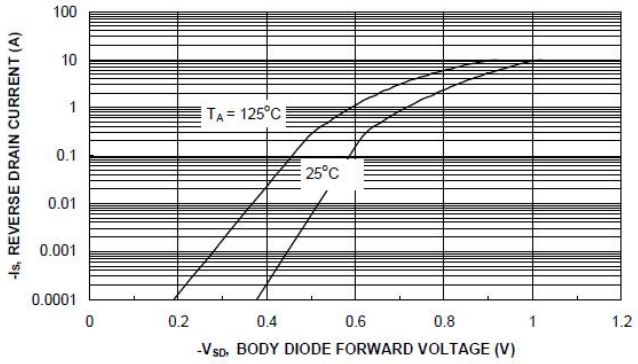


Figure 7. Source-Drain Diode Forward Voltage

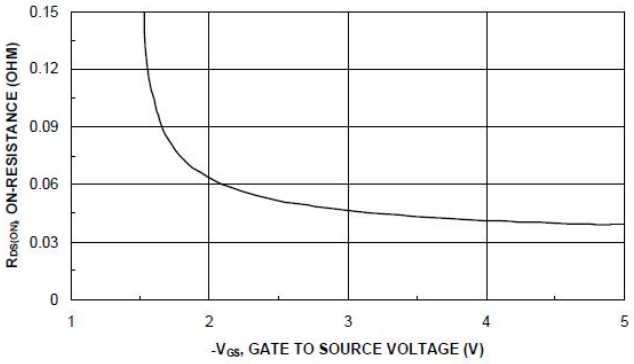


Figure 8. On-Resistance with Gate to Source Voltage

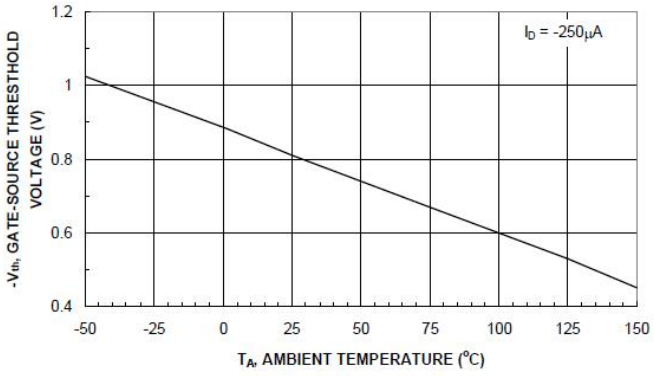


Figure 9. Vth Gate to Source Voltage Vs Temperature

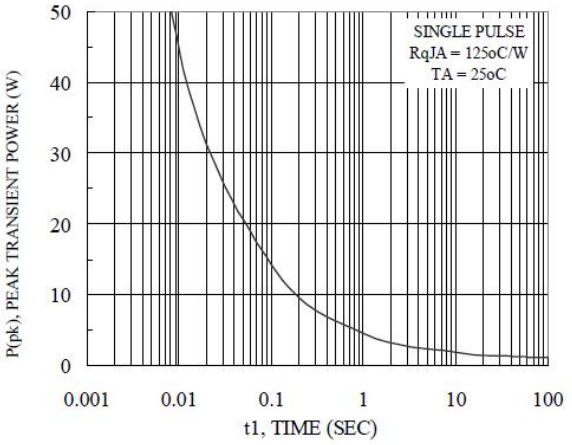


Figure 10. Single Pulse Maximum Power Dissipation

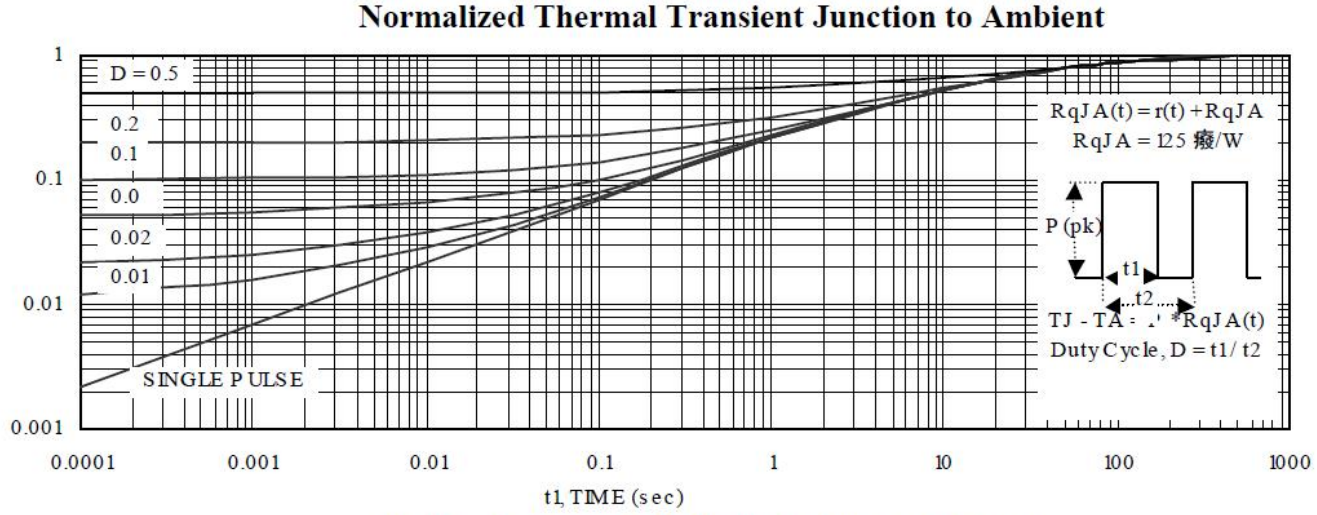


Figure 11. Transient Thermal Response Curve