

DESCRIPTION

The SSG0410 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

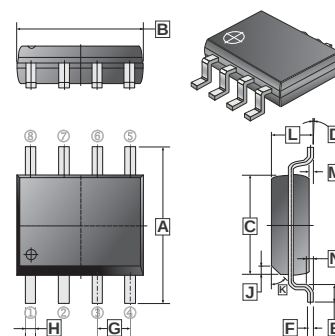
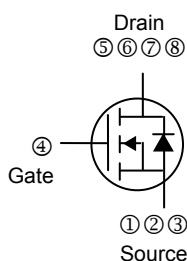
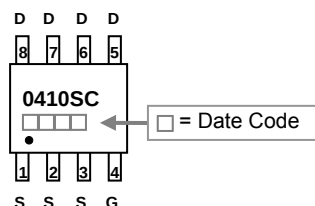
The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

SOP-8

FEATURES

- Simple Drive Requirement
- Low Gate Charge
- Fast Switching Characteristic

MARKING



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	H	0.35	0.49
B	4.80	5.00	J	0.375	REF.
C	3.80	4.00	K	45°	
D	0°	8°	L	1.35	1.75
E	0.40	0.90	M	0.10	0.25
F	0.19	0.25	N	0.25	REF.
G	1.27	TYP.			

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ³	$I_D @ T_A = 25^\circ\text{C}$	3.8	A
	$I_D @ T_A = 70^\circ\text{C}$	3.0	A
Pulsed Drain Current ¹	I_{DM}	8	A
Total Power Dissipation	P_D	2.5	W
Linear Derating Factor		0.02	W / $^\circ\text{C}$
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$
THERMAL RESISTANCE RATINGS			
Thermal Resistance Junction-ambient ³ (Max.)	$R_{\theta JA}$	50	$^\circ\text{C} / \text{W}$

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
Drain-Source Breakdown Voltage	BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =1mA
Gate Threshold Voltage	V _{GS(th)}	1.0	-	3.0	V	V _{DS} =10V, I _D =1mA
Forward Transconductance	g _{fs}	-	4	-	S	V _{DS} =10V, I _D =2.5A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} =±20V
Drain-Source Leakage Current(T _J =25°C)	I _{DSS}	-	-	10	μA	V _{DS} =100V, V _{GS} =0V
Drain-Source Leakage Current(T _J =55°C)		-	-	25	μA	V _{DS} =100V, V _{GS} =0V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	-	158	mΩ	V _{GS} =10V, I _D =2.7A
		-	-	175		V _{GS} =6V, I _D =2.5A
Total Gate Charge ²	Q _g	-	11.2	30	nC	V _{DS} =80V, I _D =3.5A, V _{GS} =5V
Gate-Source Chagre	Q _{gs}	-	4.4	-		
Gate-Drain (“Miller”) Change	Q _{gd}	-	3	-		
Turn-on Delay Time ²	T _{d(ON)}	-	9	-	nS	V _{DS} =30V, V _{GS} =10V I _D =1A, R _L =30Ω, R _G =6Ω
Rise Time	T _r	-	9.4	-		
Turn-off Delay Time	T _{d(OFF)}	-	26.8	-		
Fall Time	T _f	-	2.6	-		
Input Capacitance	C _{ISS}	-	975	1670	pF	V _{DS} =25V
Output Capacitance	C _{OSS}	-	38	-		V _{GS} =0V
Reverse Transfer Capacitance	C _{RSS}	-	27	-		f=1MHz
SOURCE-DRAIN DIODE						
Forward On Voltage ²	V _{SD}	-	-	1.2	V	I _S =3.8A, V _{GS} =0V

Notes :

1. Pulse width limited by Max. junction temperature.
2. Pulse width $\leq 300 \mu s$, duty cycle $\leq 2\%$.
3. Surface mounted on 1 in² copper pad of FR4 board ; 125 °C / W when mounted on Min. copper pad.

CHARACTERISTIC CURVES

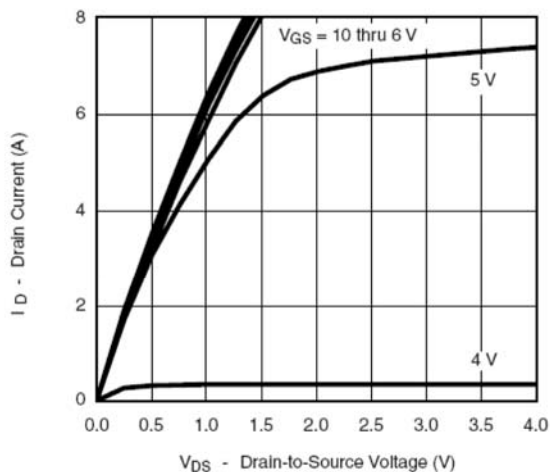


Fig 1. Typical Output Characteristics

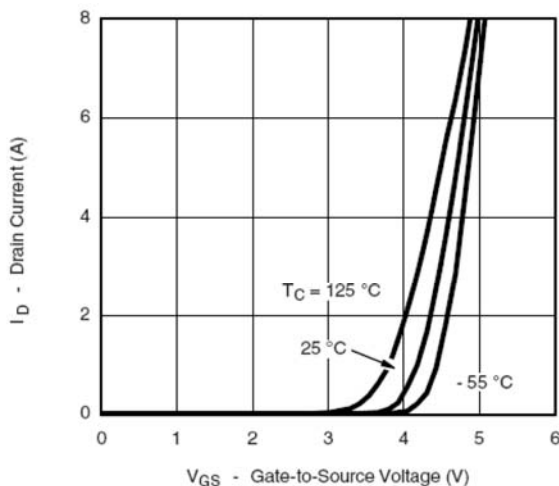


Fig 2. Typical Transfer Characteristics

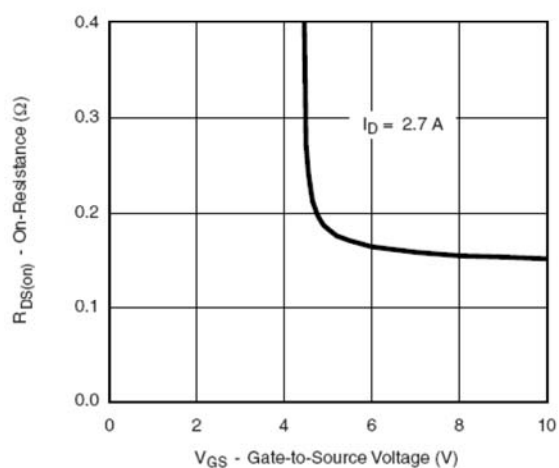


Fig 3. On-Resistance v.s. Gate Voltage

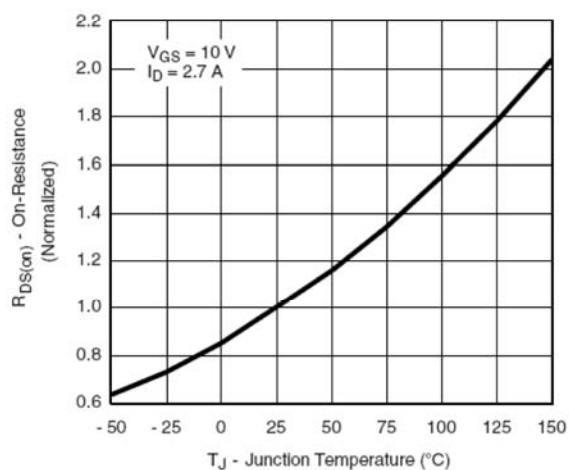


Fig 4. On-Resistance v.s. Junction Temperature

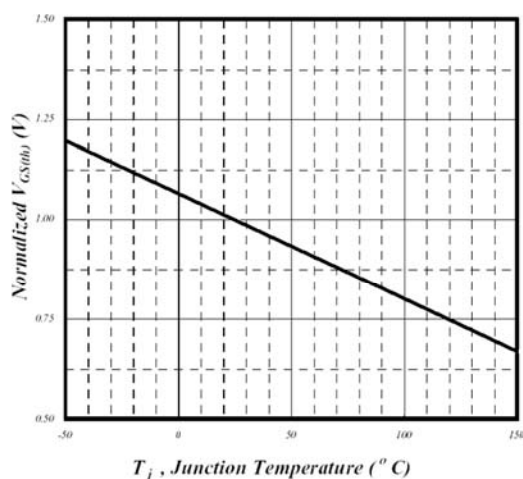
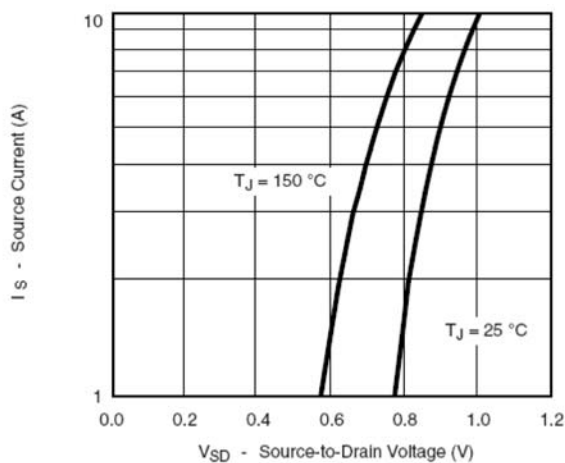


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

CHARACTERISTIC CURVES

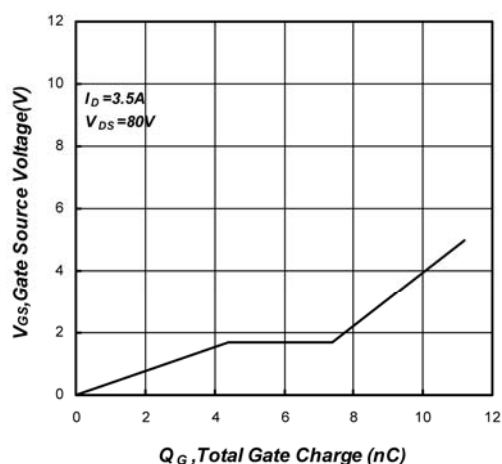


Fig 7. Gate Charge Characteristics

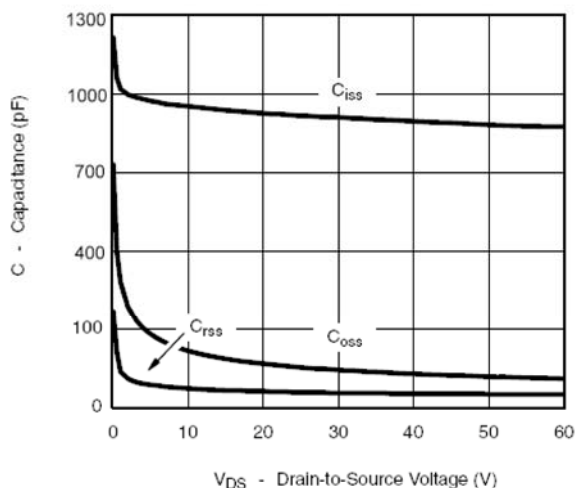


Fig 8. Typical Capacitance Characteristics

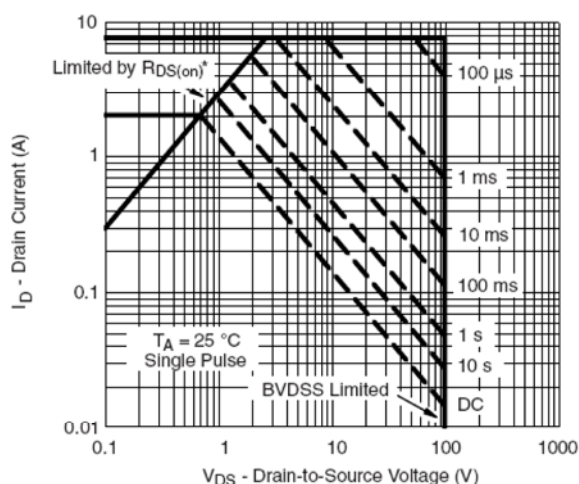


Fig 9. Maximum Safe Operating Area

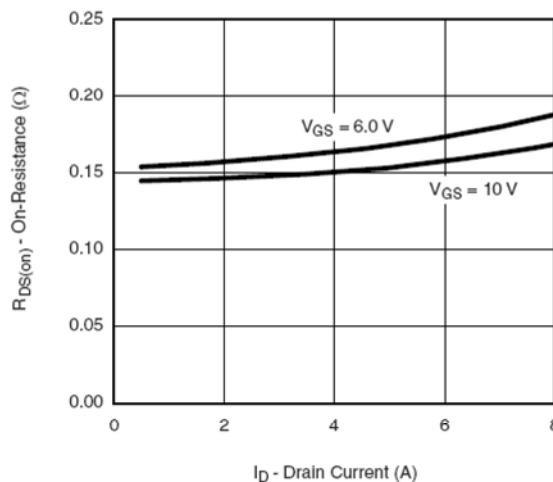


Fig 10. On-Resistance vs. Drain Current

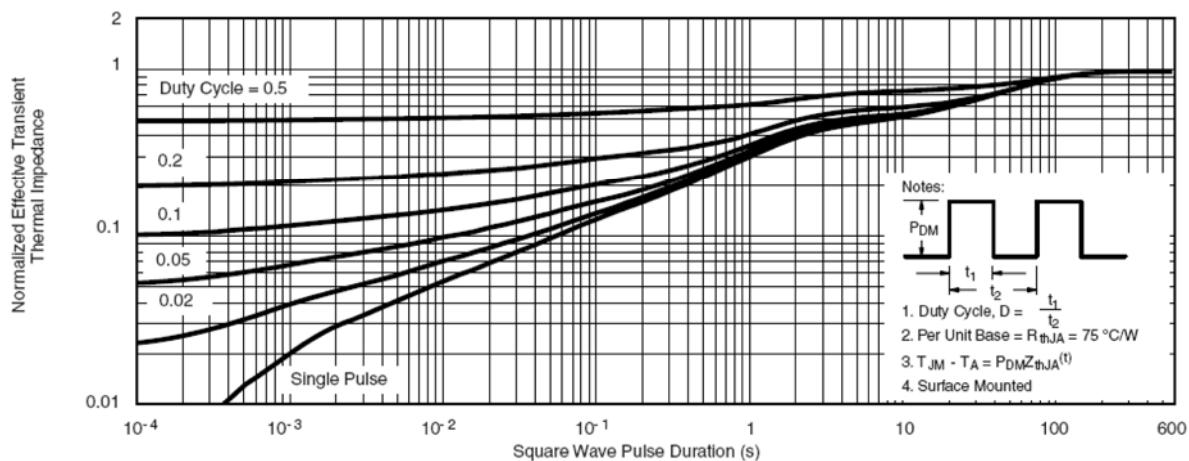


Fig 11. Normalized Thermal Transient Impedance, Junction-to-Ambient