Elektronische Bauelemente

SSF7400

30V , 1.7A , $R_{DS(ON)}$ 85mΩ
N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

The SSF7400 uses advanced trench technology to provide excellent on-resistance, low gate charge and operation with gate voltage as low as 2.5V. It can be used for a wide variety of applications, including load switching, low current inverters and low current DC-DC converters.

FEATURES

- Lower Gate Charge
- Small Package Outline

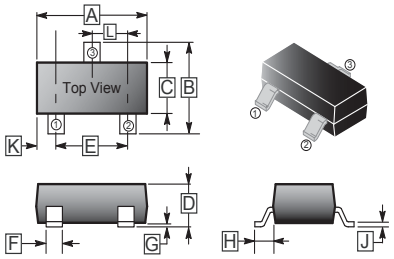
MARKING

7400

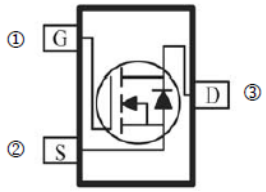
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-323	3K	7 inch

SOT-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100 REF.	
B	1.80	2.45	H	0.525 REF.	
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	-	-
E	1.20	1.40	L	0.650 TYP.	
F	0.20	0.40			



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

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current[3]	T_A=25°C	I_D	1.7	A
	T_A=70°C		1.3	
Pulsed Drain Current [1,2]		I_{DM}	10	A
Power Dissipation	T_A=25°C	P_D	0.35	W
Linear Derating Factor			0.0028	W / °C
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Junction to Ambient[3]		$R_{\theta JA}$	360	°C / W

Notes:
1. Pulse width limited by Max. junction temperature.
2. Pulse width≦300us, duty cycle≦2%.
3. Surface mounted on FR4 board, t ≦10sec.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage	$V_{GS(th)}$	0.6	-	1.4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±12V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=30V, V_{GS}=0
		-	-	5		V_{DS}=24V, V_{GS}=0
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	85	mΩ	V_{GS}=10V, I_D=1.5A
		-	-	100		V_{GS}=4.5V, I_D=1.5A
		-	-	140		V_{GS}=2.5V, I_D=1A
Forward Transconductance	g_{fs}	-	4	-	S	V_{DS}=5V, I_D=1.5A
Dynamic						
Total Gate Charge[1]	Q_g	-	4.82	-	nC	V_{DS}=15V, V_{GS}=4.5V, I_D=1.7A
Gate-Source Charge	Q_{gs}	-	0.62	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	1.58	-		
Turn-on Delay Time[1]	$T_{d(on)}$	-	2.5	-	nS	V_{DS}=15V, V_{GS}=10V, R_G=3Ω, R_L=10Ω,
Rise Time	T_r	-	2.3	-		
Turn-off Delay Time	$T_{d(off)}$	-	22	-		
Fall Time	T_f	-	3	-		
Input Capacitance	C_{iss}	-	390	-	pF	V_{GS}=0, V_{DS}=15V, f=1.0MHz
Output Capacitance	C_{oss}	-	54.4	-		
Reverse Transfer Capacitance	C_{rss}	-	41	-		
Gate Resistance	Rg	-	3	-	Ω	f=1.0MHz
Source-Drain Diode						
Continuous Source Current (Body Diode)	I_S	-	-	0.5	A	V_G=V_D=0, V_S=1V
Diode Forward Voltage[1]	V_{SD}	-	-	1	V	I_S=1A, V_{GS}=0
Reverse Recovery Time[1]	T_{RR}	-	10	-	ns	I_S=1.7A, V_{GS}=0 dI/dt=100A/μs
Reverse Recovery Charge	Q_{RR}	-	3.6	-	nC	

Notes:
1. Pulse width≦300us, duty cycle≦2%.

CHARACTERISTIC CURVE

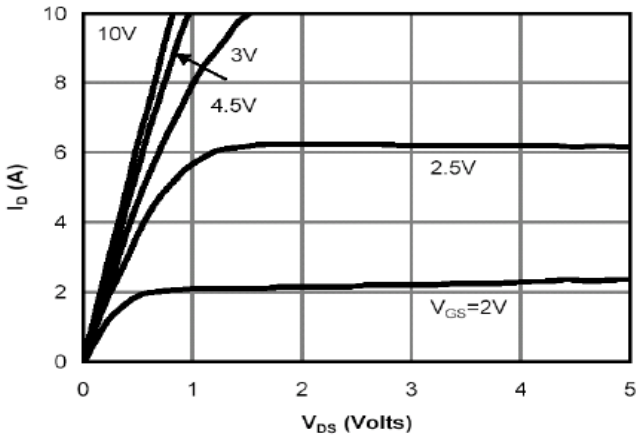


Fig 1. Typical Output Characteristics

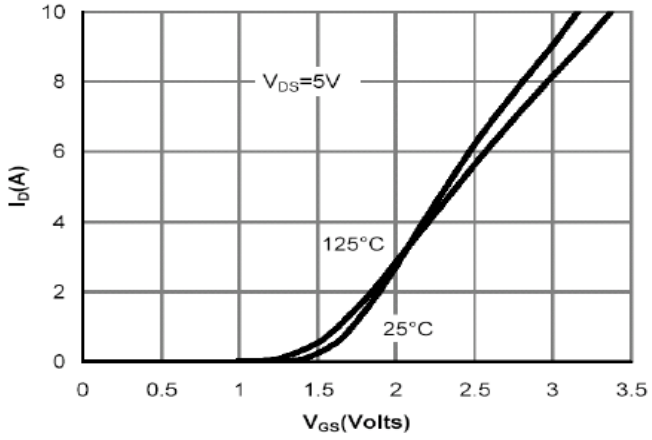


Fig 2. Transfer Characteristics

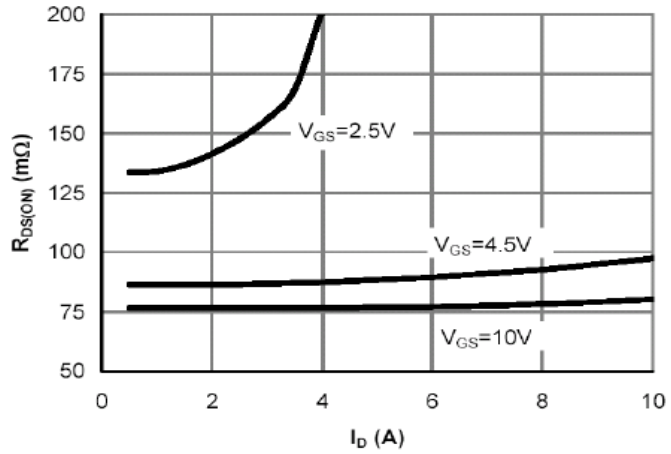


Fig 3. On-Resistance v.s. Drain Current and Gate Voltage

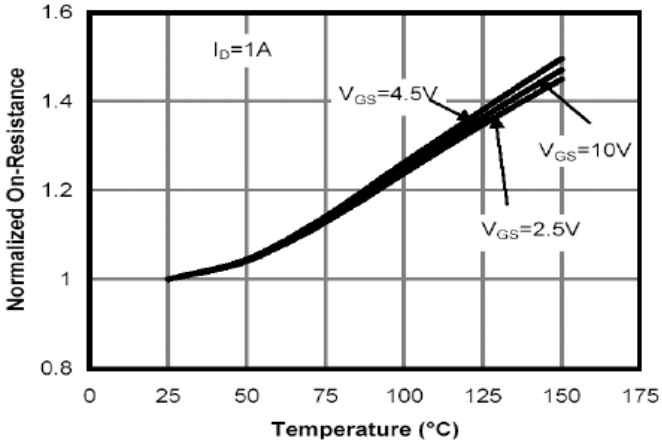


Fig 4. On-Resistance v.s. Junction Temperature

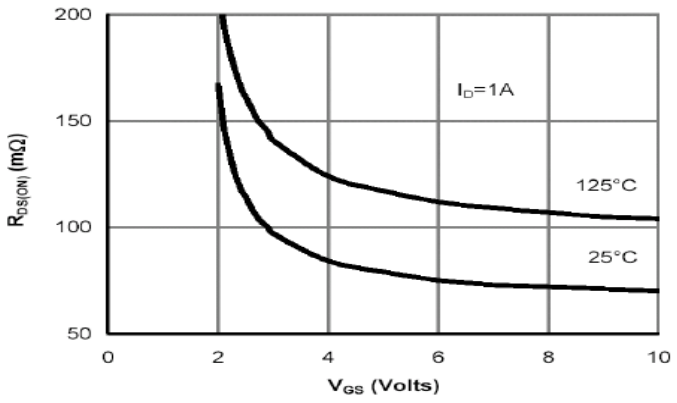


Fig 5. On-Resistance v.s. Gate-Source Voltage

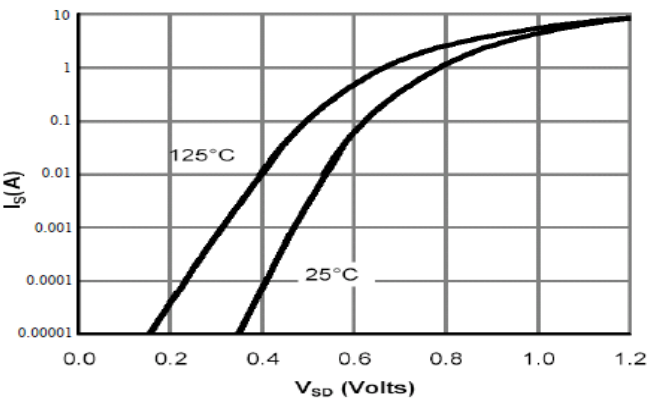


Fig 6. Body Diode Characteristics

CHARACTERISTIC CURVE

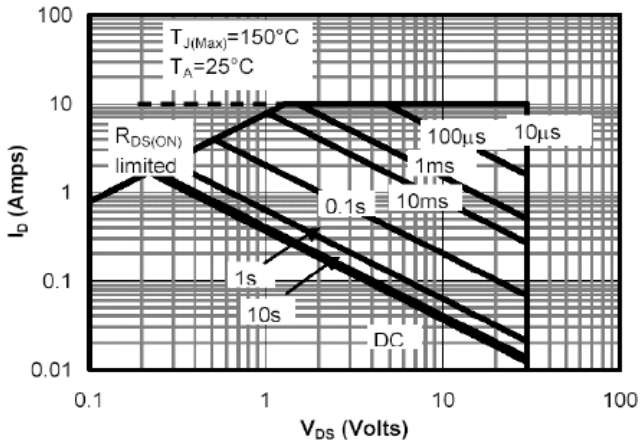


Fig 7. Maximum Safe Operating Area

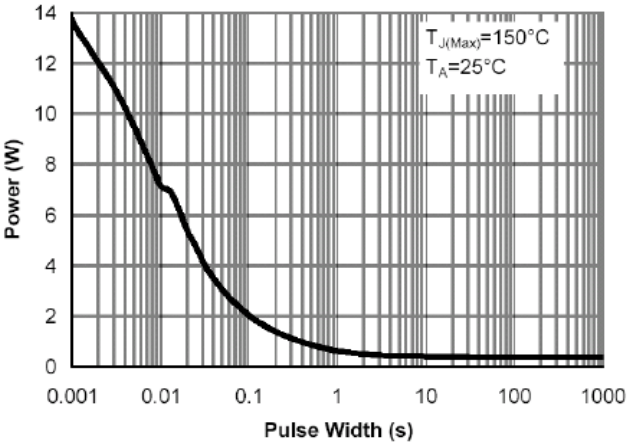


Fig 8. Single Pulse Power Rating Junction-to-Ambient

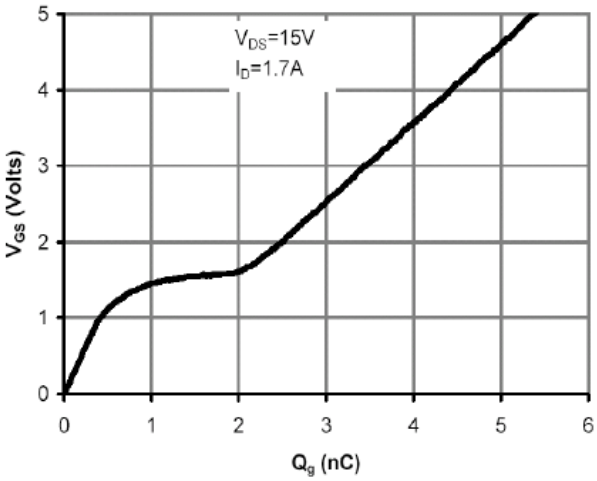


Fig 9. Gate Charge Characteristics

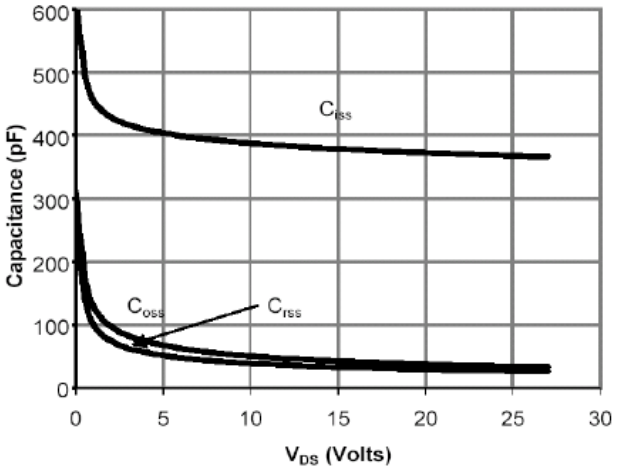


Fig 10. Typical Capacitance Characteristics

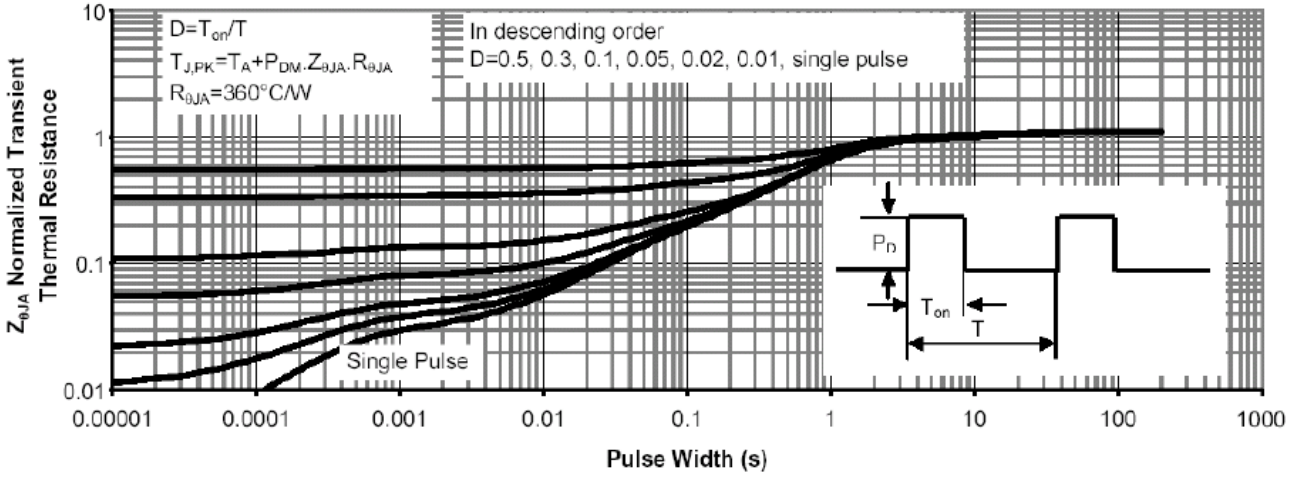


Fig 11. Normalized Maximum Transient Thermal Impedance