Elektronische Bauelemente

SST2610

3 A, 60 V, RDS(ON) 90 mΩ
N-Channel Enhancement Mode Power Mos.FET

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

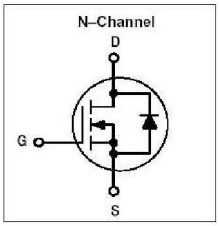
DESCRIPTION

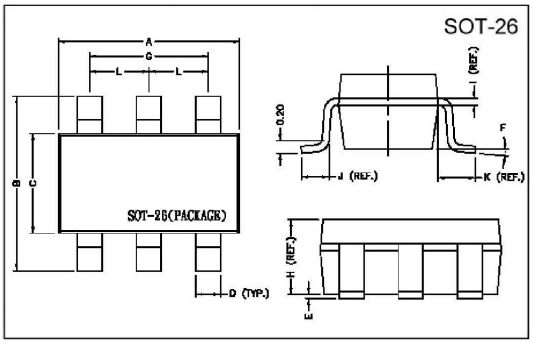
- The SST2610 uses advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.
- It is universally used for all commercial-industrial applications.

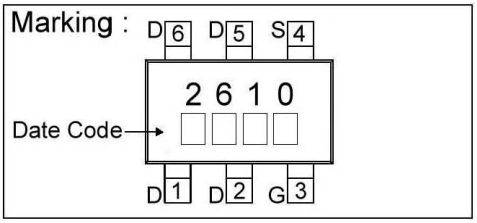
APPLICATIONS

- Low on-resistance
- Capable of 2.5V gate drive

PACKAGE INFORMATION







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90 REF.	
B	2.60	3.00	H	1.20 REF.	
C	1.40	1.80	I	0.12 REF.	
D	0.30	0.55	J	0.37 REF.	
E	0	0.10	K	0.60 REF.	
F	0	10	L	0.95 REF.	

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[3] V_{GS}@4.5V, T_A=25℃	I_D	3.0	A
Continuous Drain Current[3] V_{GS}@4.5V, T_A=70℃	I_D	2.3	A
Pulsed Drain Current [1,2]	I_D	10	A
Power Dissipation T_A=25℃	P_D	2	W
Linear Derating Factor		0.016	W / ℃
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃

THERMAL DATA

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient[3] Max.	$R_{\theta JA}$	62.5	℃ / W

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	V_{GS} = 0, I_D = 250uA
Breakdown Voltage Temperature Coefficient	ΔBV_{DSS} /ΔT_J	-	0.05	-	V / ℃	Reference to 25℃, I_D=1mA
Forward Transconductance	VGS(th)	1.0	-	3.0	V	V_{DS}=V_{GS}, I_D=250uA
Gate Leakage Current	g_{fs}	-	5.0	-	S	V_{DS} = 5V, I_D=3A
Zero Gate Voltage Drain Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Zero Gate Voltage Drain Current (T_J=25℃)	I_{DSS}	-	-	10		V_{DS}=60V, V_{GS}=0
Drain-Source Leakage Current (T_J=70℃)		-	-	25		V_{DS}=48V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	90	mΩ	V_{GS}=10V, I_D=3A
		-		120		V_{GS}=4.5V, I_D=2A
Total Gate Charge[2]	Q_g	-	6	10	ns	I_D=3A V_{DS}=48V V_{GS}=4.5V
Gate-Source Charge	Q_{gs}	-	1.6	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	3	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	6	-	ns	V_{DS}=30V I_D=1A V_{GS}=10V R_G=3.3Ω R_D=30Ω
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	16	-		
Fall Time	T_f	-	3	-		
Input Capacitance	Ciss	-	490	780	pF	V_{GS}=0V V_{DS}=25V f=1.0MHz
Output Capacitance	Coss	-	55	-		
Reverse Transfer Capacitance	Crss	-	40	-		

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

Parameter	Symbo	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage[2]	V_{SD}	-	-	1.2	V	I_S = 1.2 A, V_{GS} = 0 V
Reverse Recovery Time	T_{rr}	-	25	-	ns	I_S=3A, V_{GS}=0V
Reverse Recovery Charge	Q_{rr}	-	26	-	nC	dI/dt=100A/μs

Notes: 1. Pulse width limited by Max. junction temperature.
2. Pulse width300us, duty cycle ≦ 2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board, 156°C/W when mounted on min. copper pad.

CHARACTERISTIC CURVES

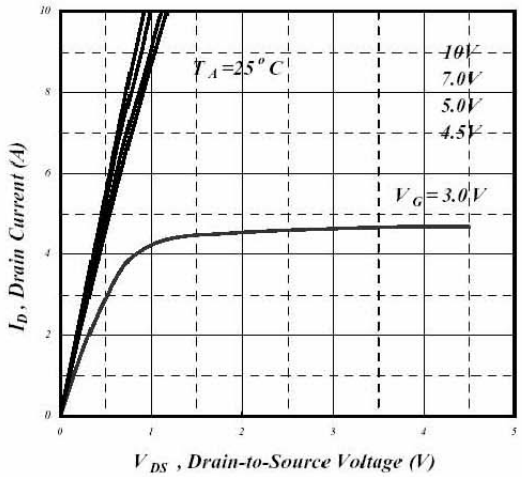


Fig 1. Typical Output Characteristics

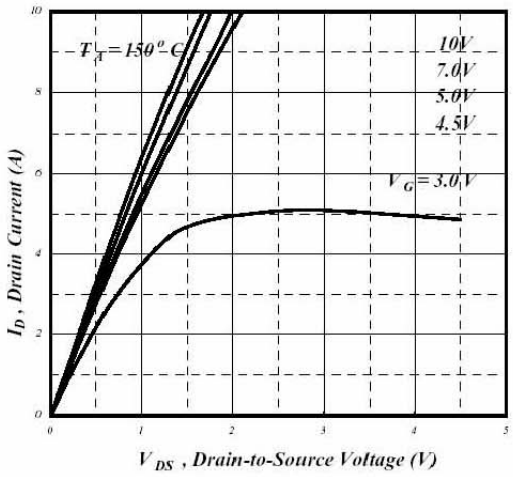


Fig 2. Typical Output Characteristics

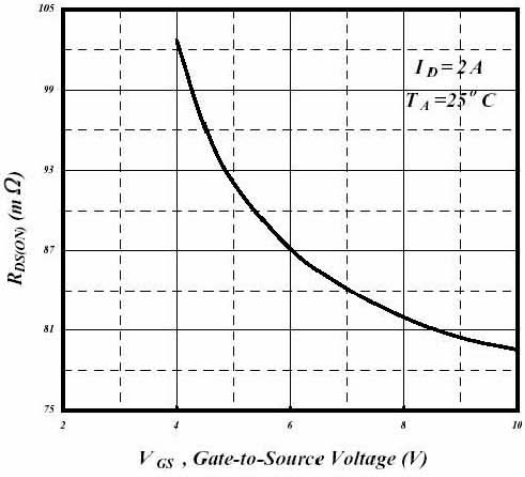


Fig 3. On-Resistance v.s. Gate Voltage

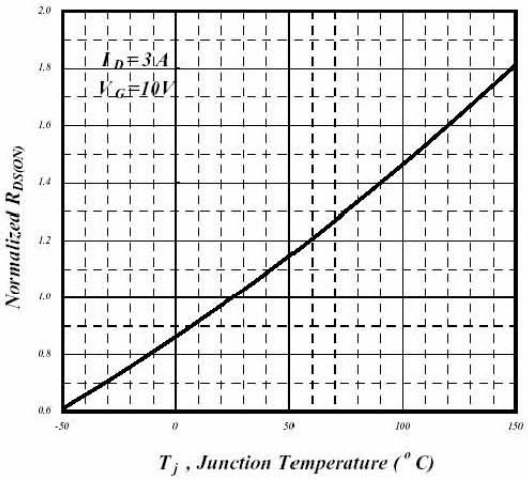


Fig 4. Normalized On-Resistance v.s. Junction Temperature

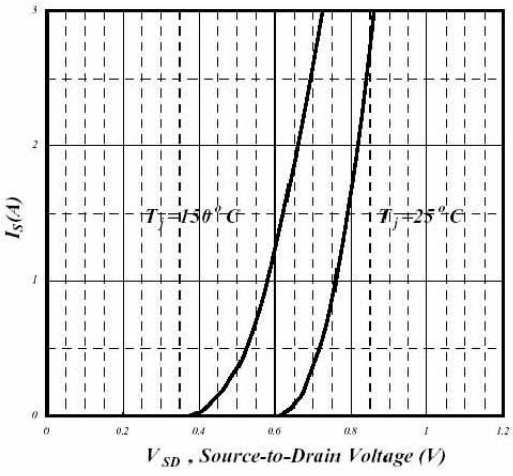


Fig 5. Forward Characteristics of Reverse Diode

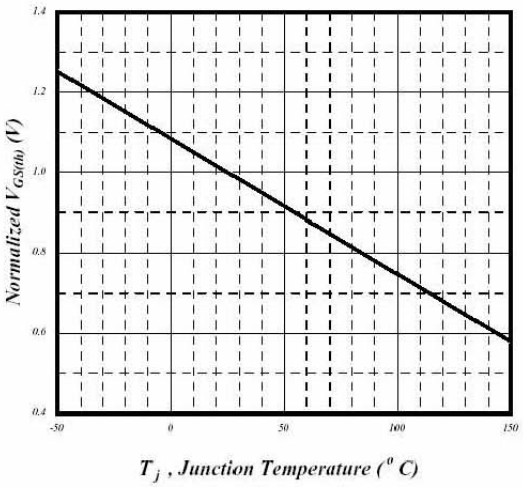


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

CHARACTERISTIC CURVES (cont'd)

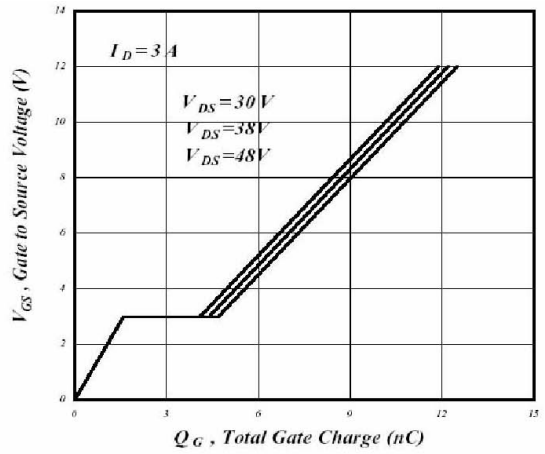


Fig 7. Gate Charge Characteristics

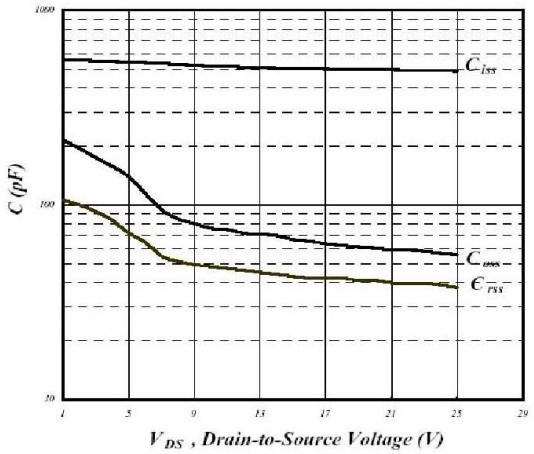


Fig 8. Typical Capacitance Characteristics

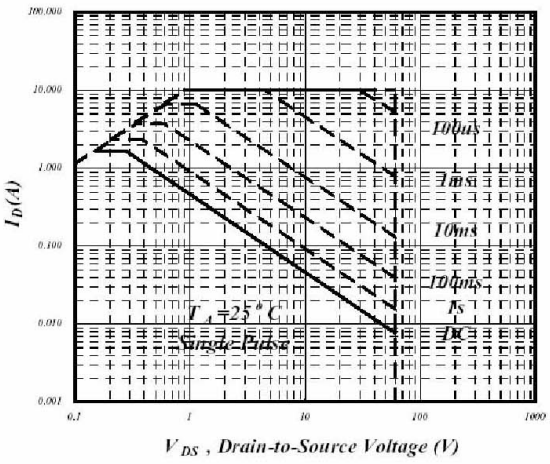


Fig 9. Maximum Safe Operating Area

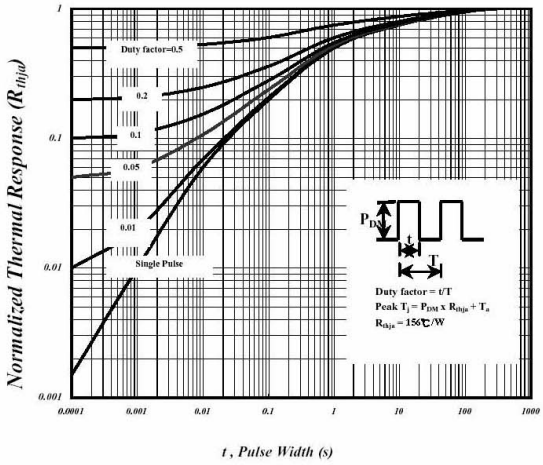


Fig 10. Effective Transient Thermal Impedance

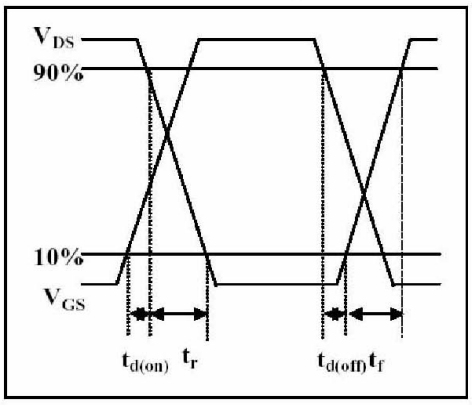


Fig 11. Switching Time Waveform

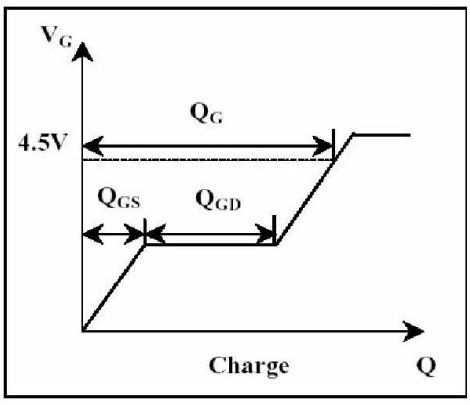


Fig 12. Gate Charge Waveform