Elektronische Bauelemente

SSF1331P

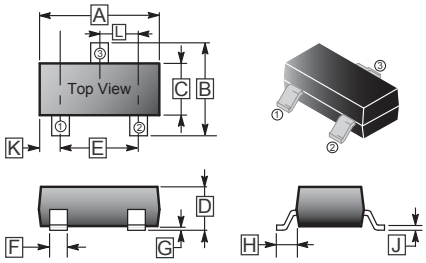
-1.5A, -30V, $R_{DS(on)}$ 0.112Ω
P-Channel MOSFET

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

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

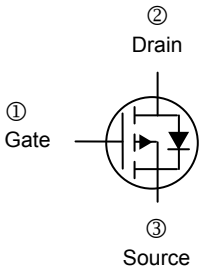
SOT-323



FEATURES

- Low RDS(on) provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe SOT-323 saves board space.
- Fast switching speed.
- High performance trench technology.

PRODUCT SUMMARY		
V_{DS}(V)	R_{DS}(on) (Ω)	I_D(A)
-30	0.112@V_{GS}= -10V	-1.5
	0.172@V_{GS}= -4.5V	-1.2



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			

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

PARAMETER		SYMBOL	RATING	UNIT
Drain – Source Voltage		V_{DS}	-30	V
Gate – Source Voltage		V_{GS}	±20	V
Continuous Drain Current [a]		I_D @ T_A=25°C	-1.5	A
		I_D @ T_A=70°C	-1.2	
Pulsed Drain Current [b]		I_{DM}	-2.5	A
Continuous Source Current (Diode Conduction) [a]		I_S	±0.28	A
Power Dissipation [a]		P_D@ T_A=25°C	0.34	W
		P_D@ T_A=70°C	0.22	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55~150	°C
THERMAL RESISTANCE RATINGS				
Maximum Thermal Resistance Junction-Ambient [a]	t ≦ 5 sec	$R_{\theta JA}$	375	°C / W
	Steady-State		430	

Note:

a. Surface Mounted on 1" x 1" FR4 Board.

b. Pulse width limited by maximum junction temperature.

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
STATIC CARACTERISTICS						
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-	V	V_{DS}= V_{GS}, I_D = -250μA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	-1	μA	V_{DS}= -24V, V_{GS}= 0V
		-	-	-10		V_{DS}= -24V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [a]	$I_{D(on)}$	-5	-	-	A	V_{DS}= -5V, V_{GS}= -10V
Drain-Source On-Resistance [a]	$R_{DS(ON)}$	-	-	112	mΩ	V_{GS}= -10V, I_D= -1.5A
		-	-	172		V_{GS}= -4.5V, I_D= -1.2A
Forward Transconductance [a]	g_{FS}	-	9	-	S	V_{DS}= -5V, I_D= -1.5A
Diode Forward Voltage	V_{SD}	-	-0.65	-	V	I_S= -0.46A, V_{GS}= 0V
DYNAMIC CHARACTERISTICS [b]						
Total Gate Charge	Q_g	-	7.2	-	nC	V_{DS}= -10V
Gate-Source Charge	Q_{gs}	-	1.7	-		V_{GS}= -5V
Gate-Drain Charge	Q_{gd}	-	1.5	-		I_D= -1.5A
Turn-on Delay Time	$T_{d(ON)}$	-	10	-	nS	V_{DD}= -10V
Rise Time	T_R	-	9	-		I_L= -1A
Turn-off Delay Time	$T_{d(OFF)}$	-	27	-		V_{GEN}= -4.5V
Fall Time	T_F	-	11	-		R_G= 6Ω

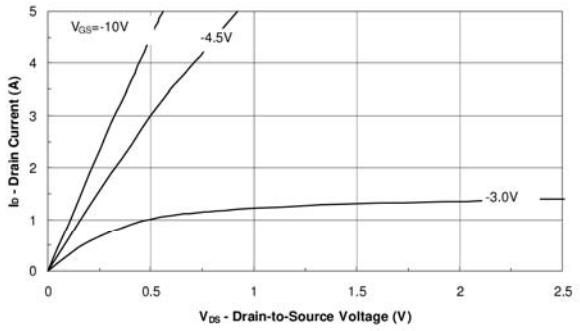
Notes：

a. Pulse test：PW ≦ 300us duty cycle ≦ 2%.

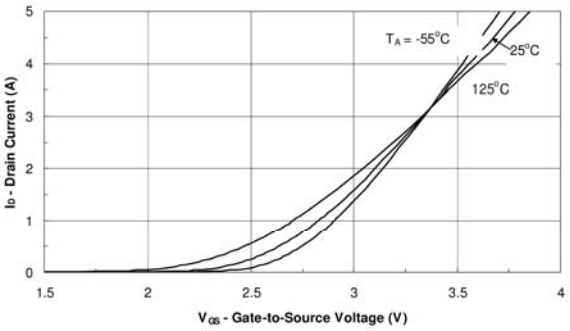
b. Guaranteed by design, not subject to production testing.

c. Repetitive rating, pulse width limited by junction temperature.

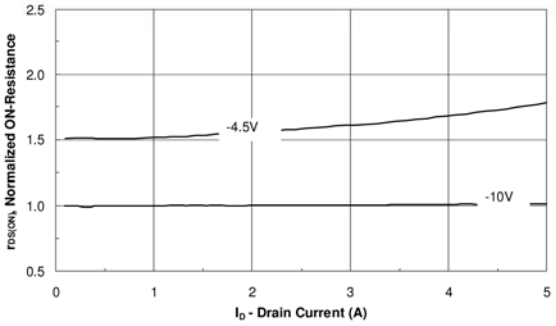
CHARACTERISTIC CURVES



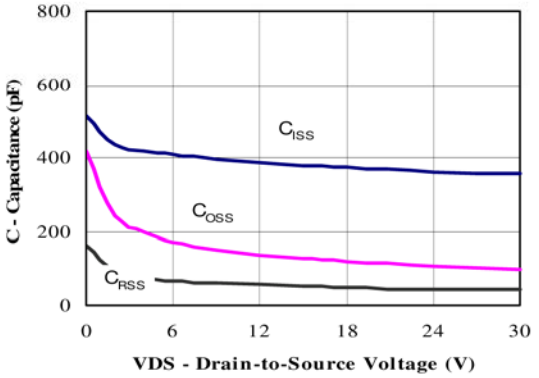
Output Characteristics



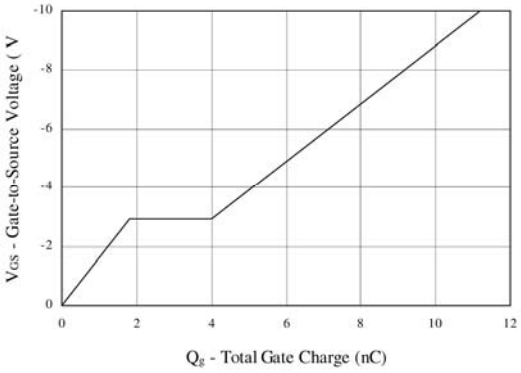
Transfer Characteristics



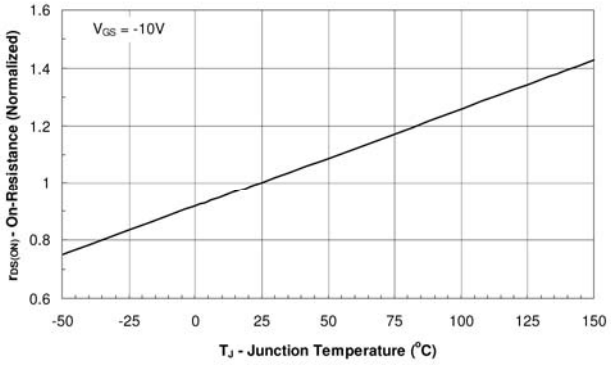
On-Resistance vs. Drain Current



Capacitance

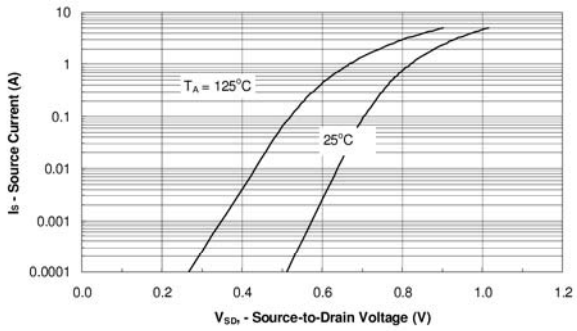


Gate Charge

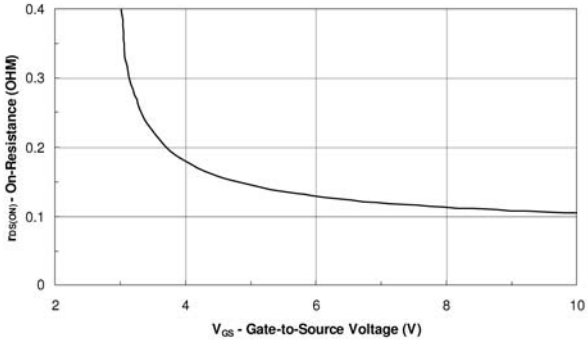


On-Resistance vs. Junction Temperature

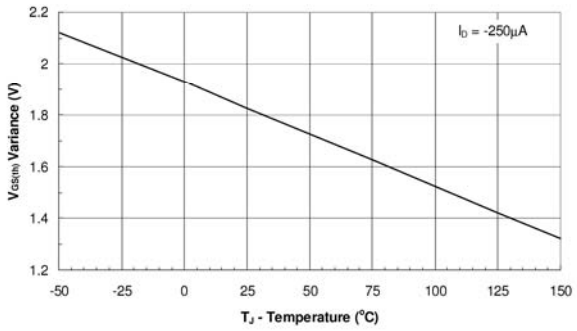
CHARACTERISTIC CURVES

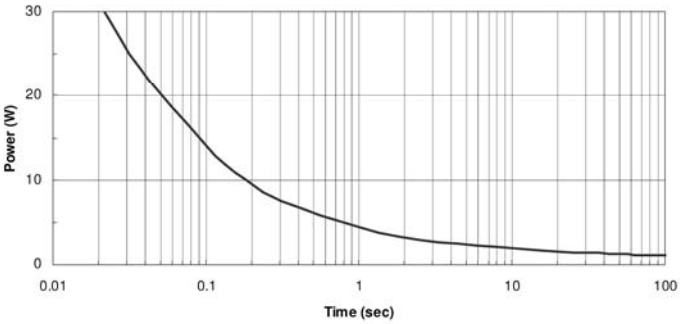


Source-Drain Diode Forward Voltage



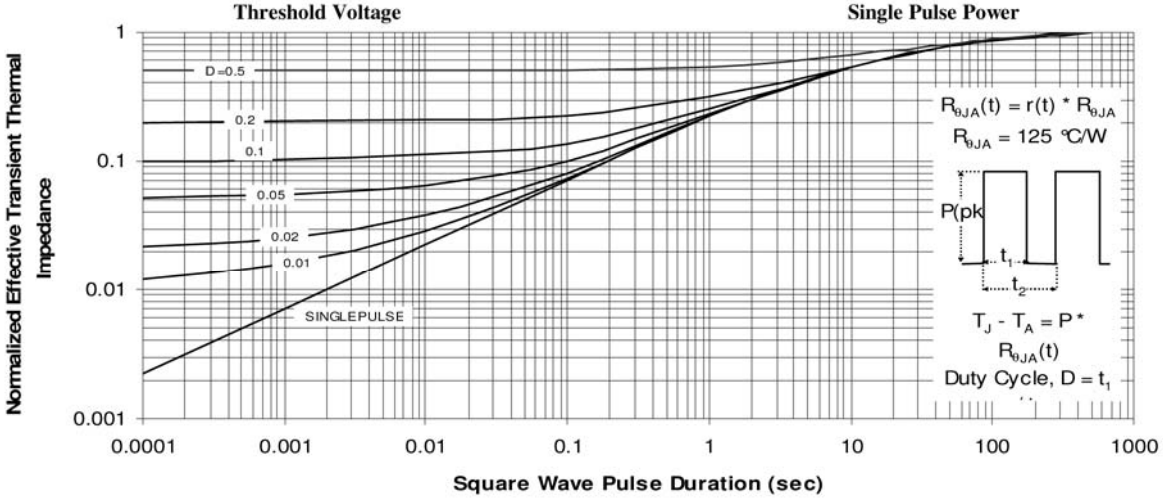
On-Resistance vs.Gate-to Source Voltage





Threshold Voltage

Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient