Elektronische Bauelemente

SSD50N06-15D

N-Ch Enhancement Mode Power MOSFET
51A, 60V, $R_{DS(ON)}$ 13 mΩ

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

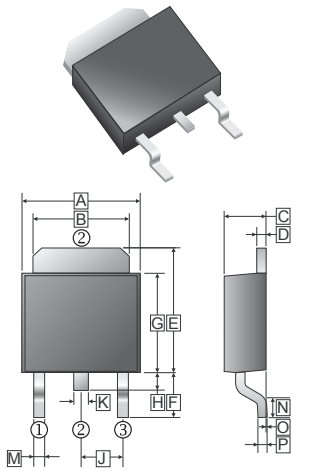
DESCRIPTION

These miniature surface mount MOSFETs utilize 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 PWM DC-DC converters, power management in portable and battery-powered products such as computers, printers, battery charger, telecommunication power system, and telephones power system.

FEATURES

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature TO-252 Surface Mount Package Saves Board Space
- High power and current handling capability
- Low side high current DC-DC Converter applications

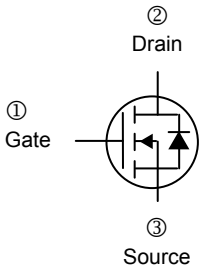
TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.4	6.8	J	2.30 REF.	
B	5.20	5.50	K	0.70	0.90
C	2.20	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.6
E	6.8	7.3	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.2			
H	0.8	1.20			

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @T_C=25°C [1]	I_D	51	A
Pulsed Drain Current [2]	I_{DM}	200	A
Continuous Source Current (Diode Conduction) [1]	I_S	51	A
Power Dissipation @T_C=25°C [1]	P_D	50	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 175	°C
THERMAL RESISTANCE RATINGS			
Maximum Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	40	°C / W
Maximum Thermal Resistance Junction-Case	$R_{\theta JC}$	3	°C / W

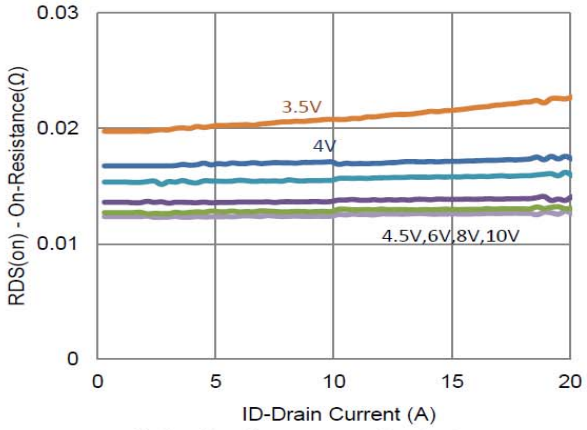
Notes
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

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

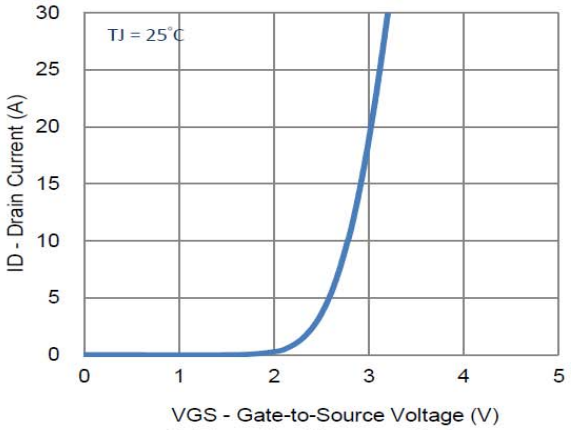
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	1.0	-	-	V	V_{DS} = V_{GS}, I_D = 250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}= 0V, V_{GS}= ±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}= 48V, V_{GS}= 0V
		-	-	25		V_{DS}= 48V, V_{GS}= 0V, T_J= 55°C
On-State Drain Current [1]	$I_{D(ON)}$	35	-	-	A	V_{DS}= 5V, V_{GS}= 10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	13	mΩ	V_{GS}= 10V, I_D= 20A
		-	-	18		V_{GS}= 4.5V, I_D= 16A
Forward Transconductance [1]	g_{fs}	-	24	-	S	V_{DS}= 15V, I_D= 20A
Diode Forward Voltage	V_{SD}	-	0.9	-	V	I_S= 25.5A, V_{GS} =0
Dynamic [2]						
Total Gate Charge	Q_g	-	20	-	nC	I_D= 20A V_{DS}= 30V V_{GS}= 4.5V
Gate-Source Charge	Q_{gs}	-	5.9	-		
Gate-Drain Change	Q_{gd}	-	11	-		
Input Capacitance	C_{iss}	-	2022	-	pF	f = 1MHz V_{DS}=15V V_{GS}=0
Output Capacitance	C_{oss}	-	101	-		
Reverse Transfer Capacitance	C_{rss}	-	158	-		
Turn-on Delay Time	$T_{d(on)}$	-	10	-	nS	V_{DS}=30V I_D=20A R_L=1.5Ω V_{GEN}=10V R_{GEN}=6Ω
Rise Time	T_r	-	11	-		
Turn-off Delay Time	$T_{d(off)}$	-	61	-		
Fall Time	T_f	-	19	-		

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

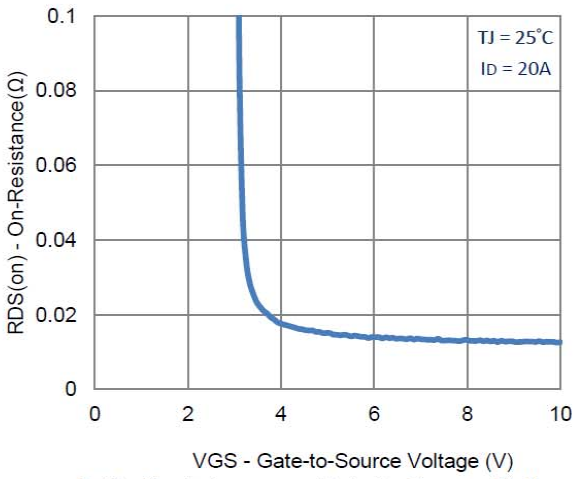
CHARACTERISTICS CURVE



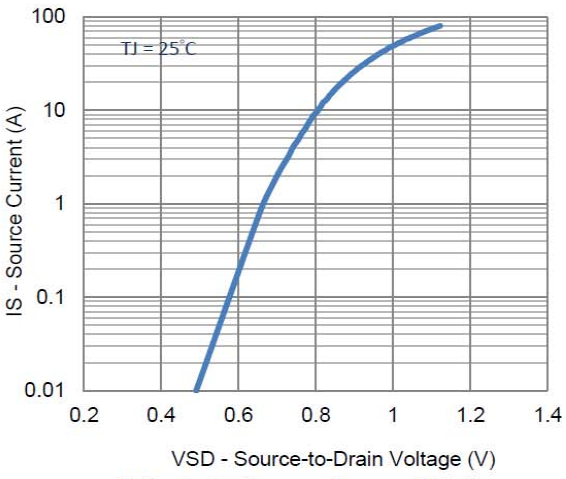
1. On-Resistance vs. Drain Current



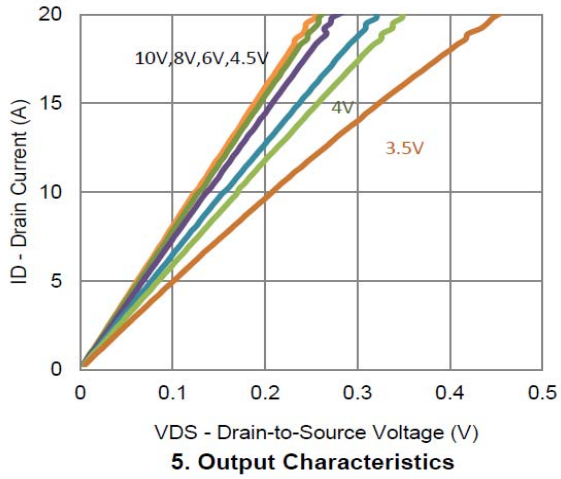
2. Transfer Characteristics



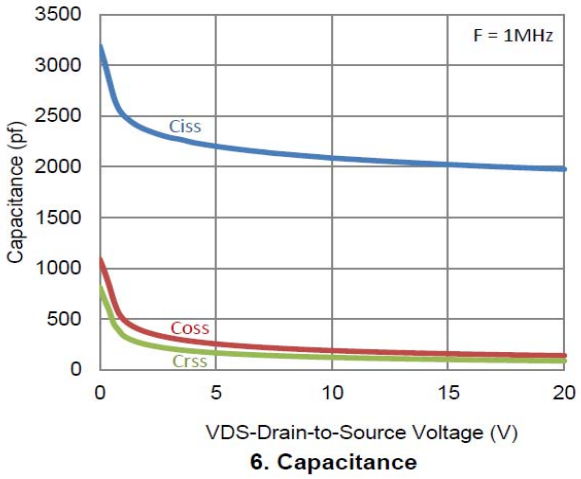
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

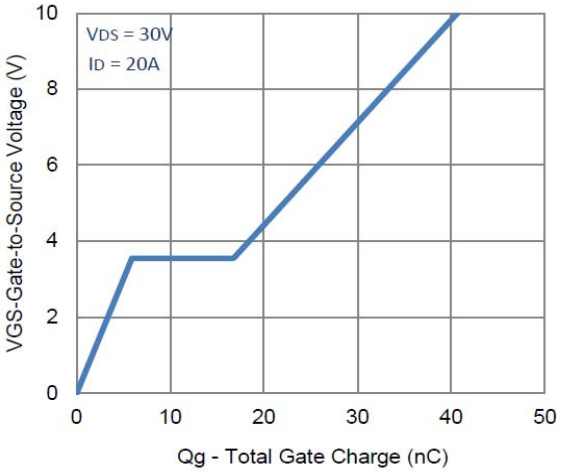


5. Output Characteristics

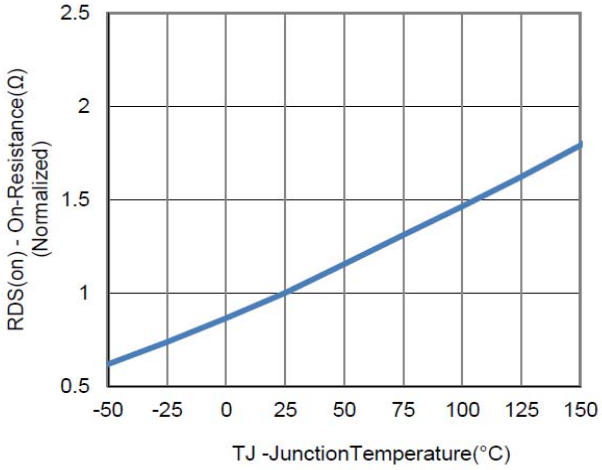


6. Capacitance

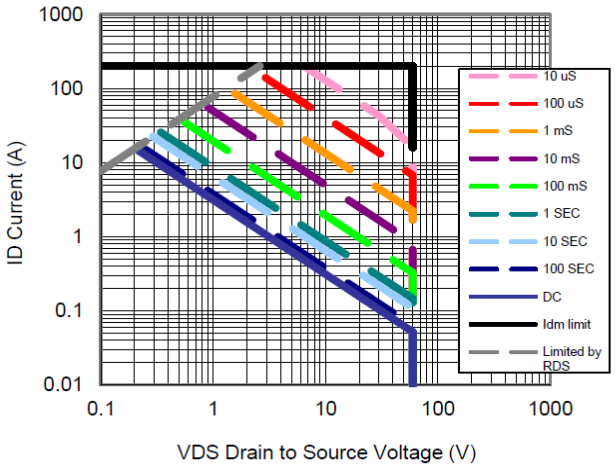
CHARACTERISTICS CURVE



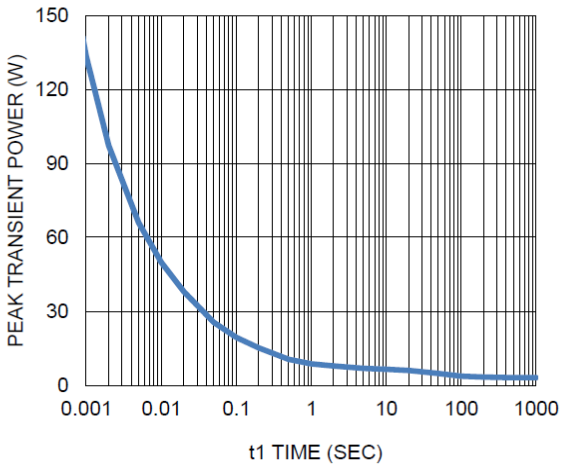
7. Gate Charge



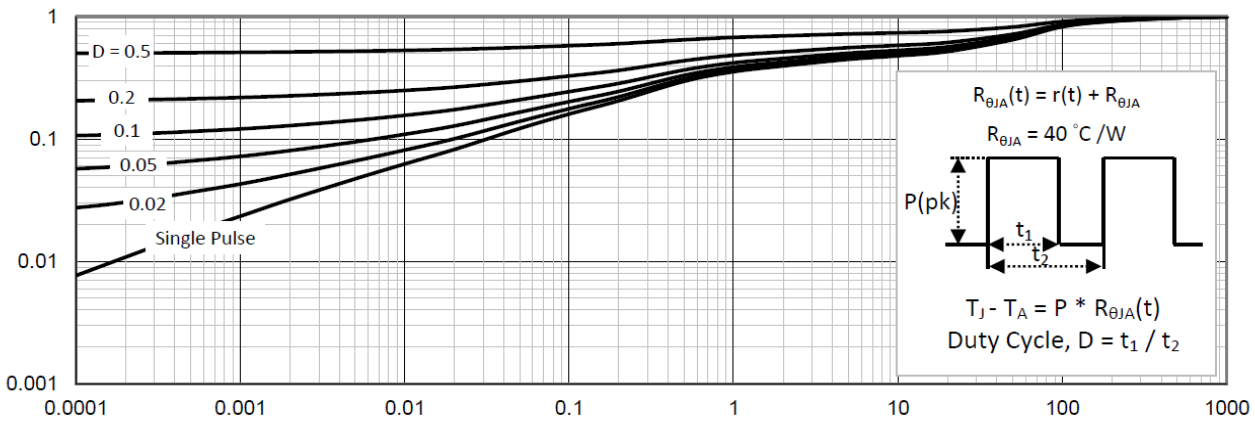
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient