Elektronische Bauelemente

SSD60N10-13D

51A, 100V, $R_{DS(ON)}$ 13mΩ

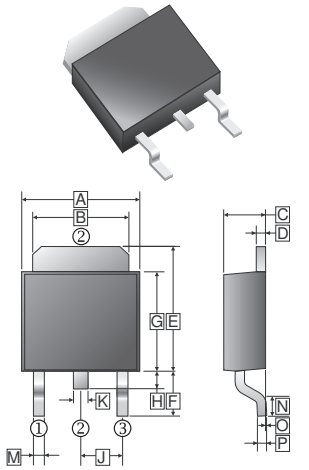
N-Ch Enhancement Mode Power MOSFET

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 the energy that makes this device ideal for the use in power management circuitry. Typical applications of the device 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.

TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.186	2.386
B	4.95	5.50	K	0.64	1.14
C	2.10	2.50	M	0.50	1.14
D	0.43	0.9	N	1.3	1.8
E	6.0	7.5	O	0	0.13
F	2.90 REF		P	0.58REF.	
G	5.40	6.40			
H	0.60	1.20			

FEATURES

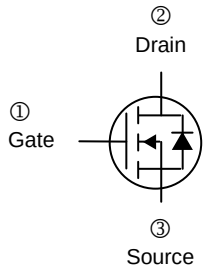
- Low $R_{DS(on)}$ trench technology
- Low thermal impedence
- Fast switching speed

APPLICATIONS

- White LED boost converters
- Automotive systems
- Industrial DC/DC conversion circuits

PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @T_C=25℃ [1]	I_D	51	A
Pulsed Drain Current [2]	I_{DM}	200	A
Continuous Source Current (Diode Conduction) @T_C=25℃ [1]	I_S	55	A
Power Dissipation @T_C=25℃ [1]	P_D	50	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~175	℃
Thermal Resistance Rating			
Maximum Thermal Resistance from Junction to Ambient [3]	$R_{\theta JA}$	40	℃/ W
Maximum Thermal Resistance from Junction to Case	$R_{\theta JC}$	3	℃/ W

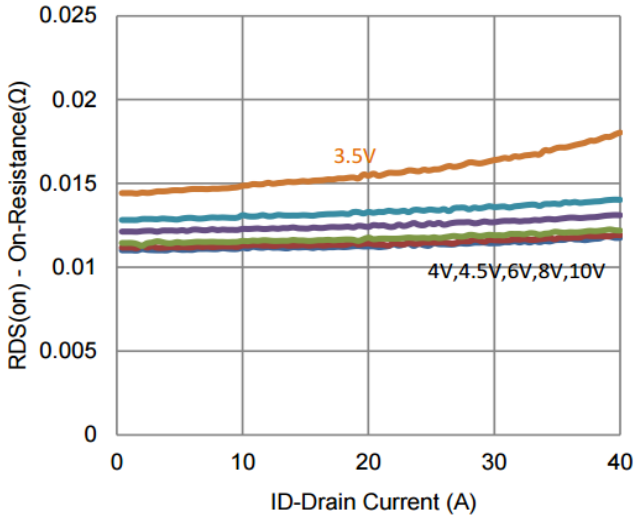
Notes:
1. Package Limited.
2. The surface of the device is mounted on a 1" x 1" FR4 board.
3. Pulse width is limited by the maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

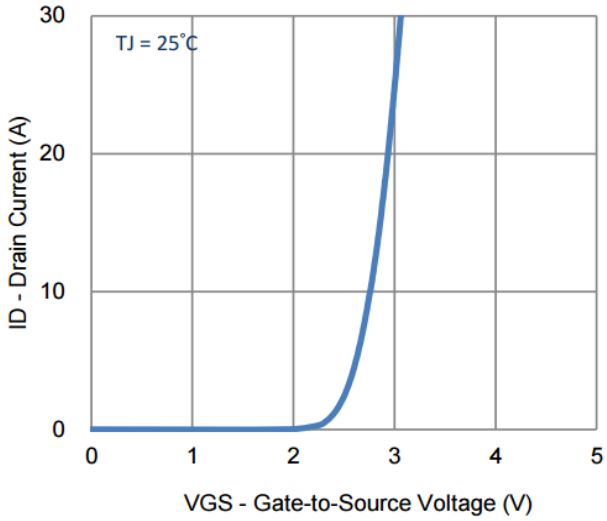
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0
		-	-	10		V_{DS}=80V, V_{GS}=0, T_J=55℃
On-State Drain Current	$I_{D(ON)}$	62.5	-	-	A	V_{DS}=5V, V_{GS}=10V
Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	13	mΩ	V_{GS}=10V, I_D=20A
		-	-	14		V_{GS}=5.5V, I_D=16A
Forward Transconductance	g_{fs}	-	19	-	S	V_{DS}=15V, I_D=20A
Diode Forward Voltage	V_{SD}	-	0.85	-	V	I_S=28A, V_{GS}=0
Dynamic						
Total Gate Charge	Q_g	-	89	-	nC	V_{DS}=50V V_{GS}=5.5V I_D=20A
Gate-Source Charge	Q_{gs}	-	24	-		
Gate-Drain Change	Q_{gd}	-	27	-		
Turn-on Delay Time	$T_{d(on)}$	-	18	-	nS	V_{DS}=50V V_{GEN}=10V R_L=2.5Ω R_{GEN}=6Ω I_D=20A
Rise Time	T_r	-	23	-		
Turn-off Delay Time	$T_{d(off)}$	-	188	-		
Fall Time	T_f	-	52	-		
Input Capacitance	C_{iss}	-	18691	-	pF	V_{DS}=15V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	346	-		
Reverse Transfer Capacitance	C_{rss}	-	328	-		

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

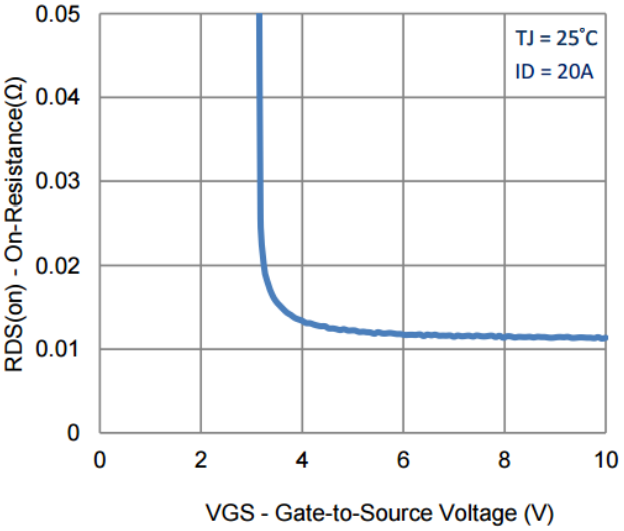
CHARACTERISTICS CURVE



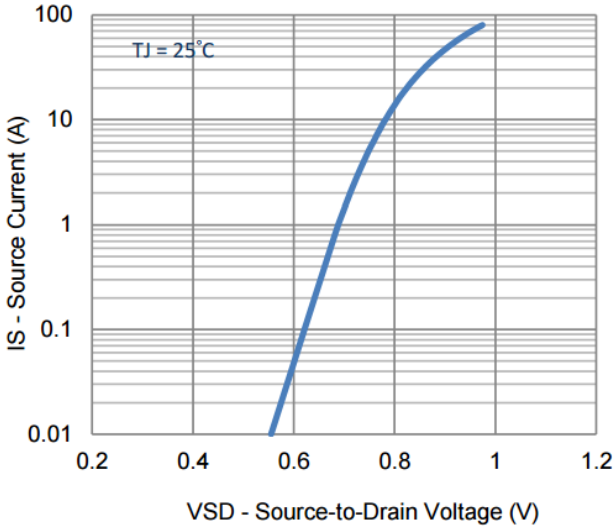
1. On-Resistance vs. Drain Current



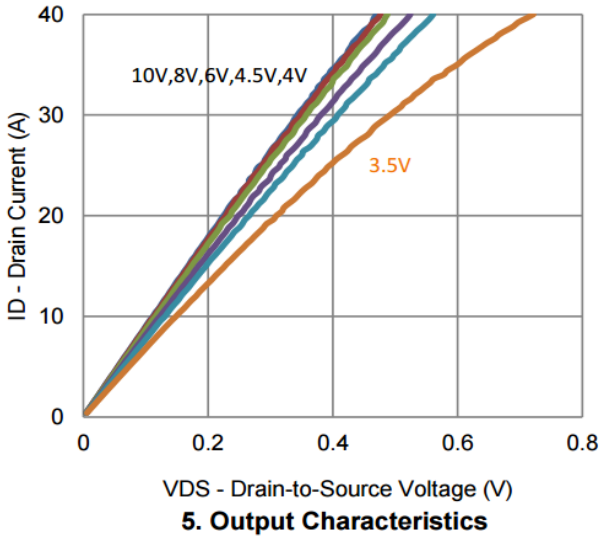
2. Transfer Characteristics



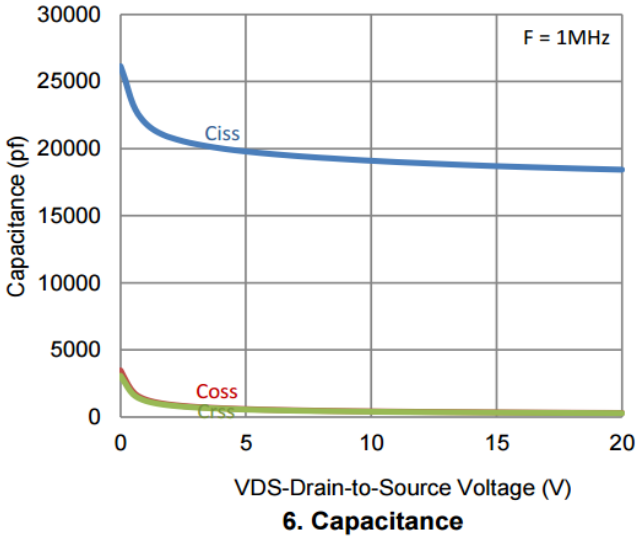
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

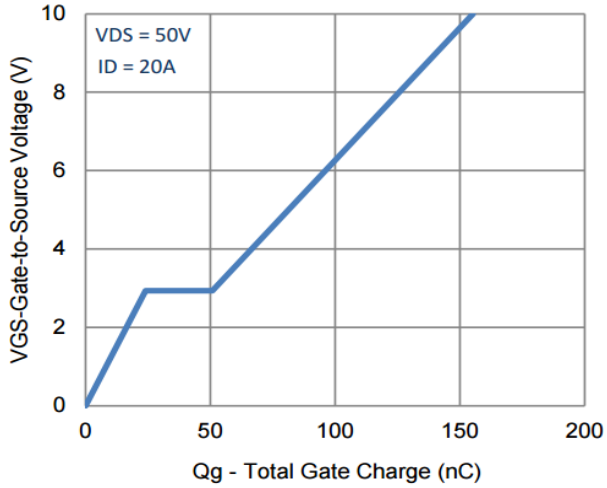


5. Output Characteristics

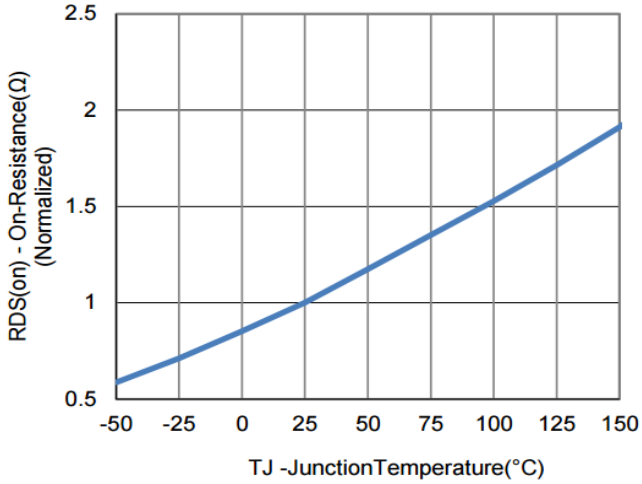


6. Capacitance

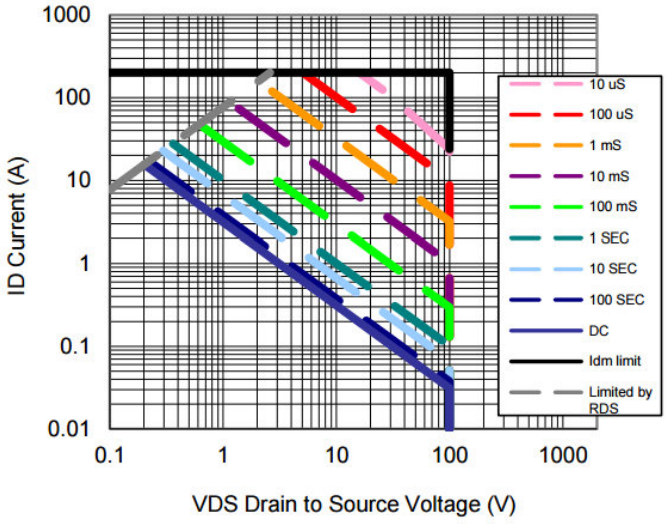
CHARACTERISTICS CURVE



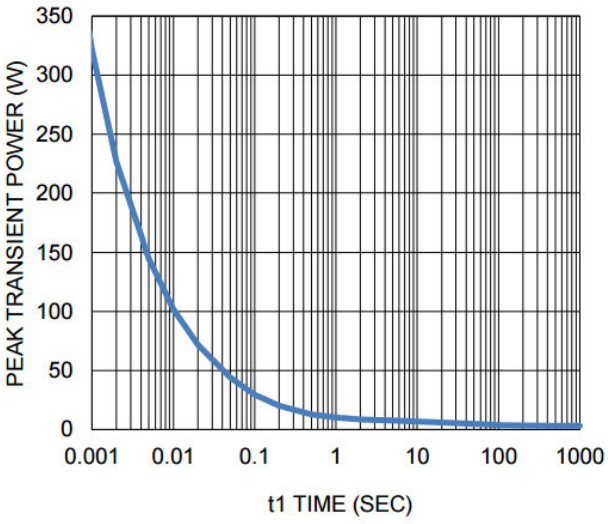
7. Gate Charge



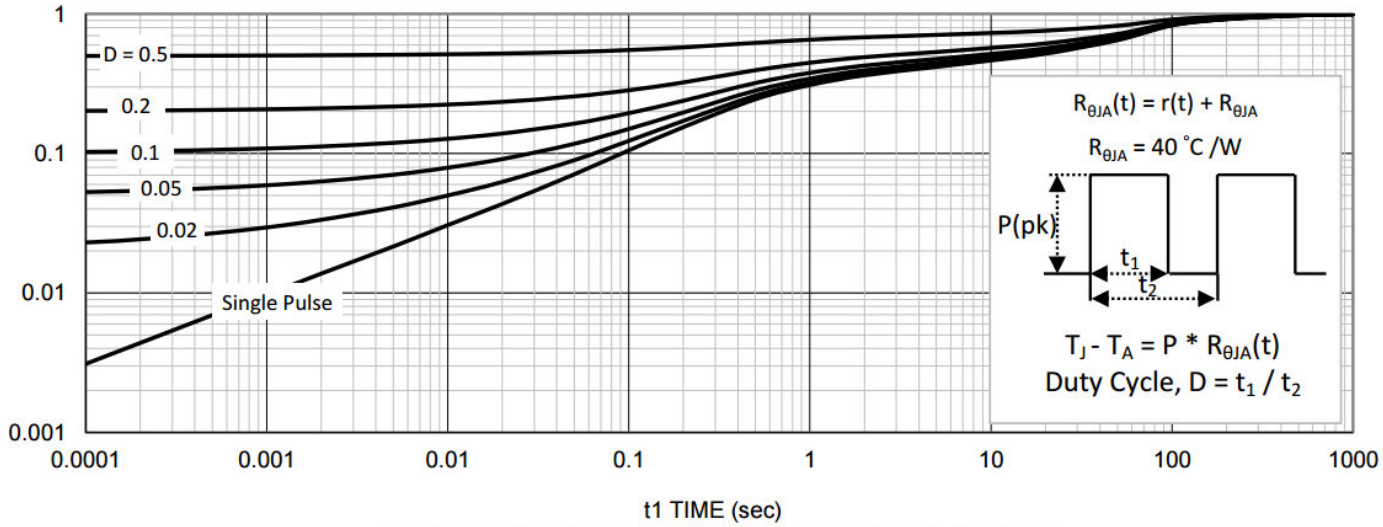
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient