Elektronische Bauelemente

SSD50N10-18D

43A , 100V , $R_{DS(ON)}$ 18mΩ

N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

These miniature surface mount MOSFET utilize a high cell density trench process to provide low $R_{DS(on)}$ and to ensure minimal power loss and heat dissipation.

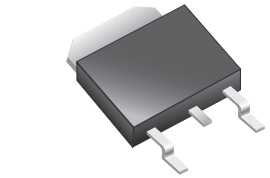
FEATURES

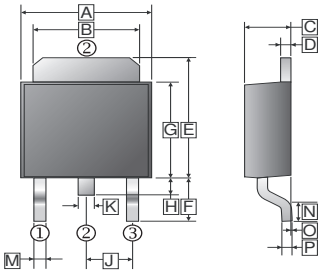
- Low $R_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe TO-252 saves board space
- Fast switching speed
- High performance trench technology

APPLICATION

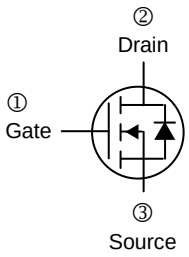
DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

TO-252(D-Pack)





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.80	J	2.30 REF.	
B	5.20	5.50	K	0.64	0.90
C	2.15	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.65
E	6.8	7.5	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.25			
H	0.64	1.20			



PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [1]	T_C=25℃	I_D	43	A
Pulsed Drain Current [2]		I_{DM}	160	A
Continuous Source Current (Diode Conduction) [1]		I_S	55	A
Total Power Dissipation [1]	T_C=25℃	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance Junction-Ambient [1]		$R_{\theta JA}$	40	℃ / W
Maximum Thermal Resistance Junction-Case		$R_{\theta JC}$	3	℃ / W

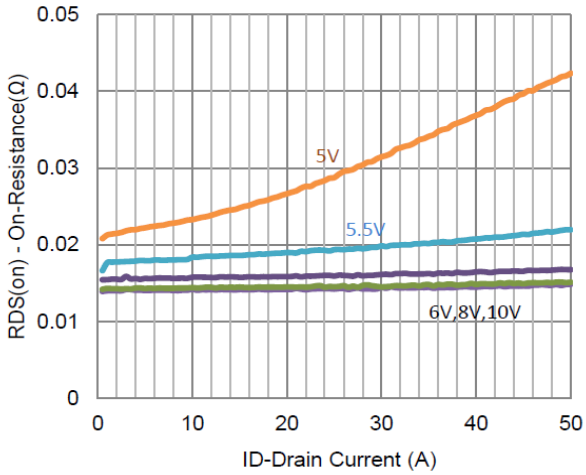
Note:
1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature

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

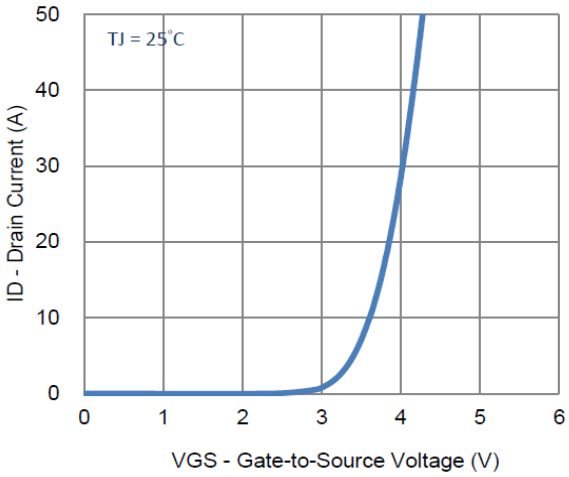
Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	-	V	V_{DS}=V_{GS}, I_D =250μA
Gate-Body Leakage	I_{GSS}	-	-	±100	nA	V_{DS}=0, V_{GS}=±20V
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0
		-	-	25		V_{DS}=80V, V_{GS}=0, T_J=55℃
On-State Drain Current [1]	$I_{D(on)}$	50	-	-	A	V_{DS}=5V, V_{GS}=10V
Drain-Source On-Resistance [1]	$R_{DS(ON)}$	-	-	18	mΩ	V_{GS}=10V, I_D=20A
		-	-	24		V_{GS}=5.5V, I_D=16A
Forward Transconductance [1]	g_{fs}	-	22	-	S	V_{DS}=15V, I_D=20A
Diode Forward Voltage	V_{SD}	-	0.85	-	V	I_S=27.5A, V_{GS}=0
Dynamic [2]						
Total Gate Charge	Q_g	-	60	-	nC	V_{DS}=50V V_{GS}=5.5V I_D=20A
Gate-Source Charge	Q_{gs}	-	15	-		
Gate-Drain Charge	Q_{gd}	-	36	-		
Turn-on Delay Time	$T_{d(on)}$	-	19	-	nS	V_{DS}=50V I_D=20A V_{GEN}=10V R_L=2.5Ω R_{GEN}=6Ω
Rise Time	T_r	-	42	-		
Turn-off Delay Time	$T_{d(off)}$	-	129	-		
Fall Time	T_f	-	46	-		
Input Capacitance	C_{iss}	-	4376	-	pF	V_{GS} =0 V_{DS}=15 V f =1.0MHz
Output Capacitance	C_{oss}	-	389	-		
Reverse Transfer Capacitance	C_{rss}	-	358	-		

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

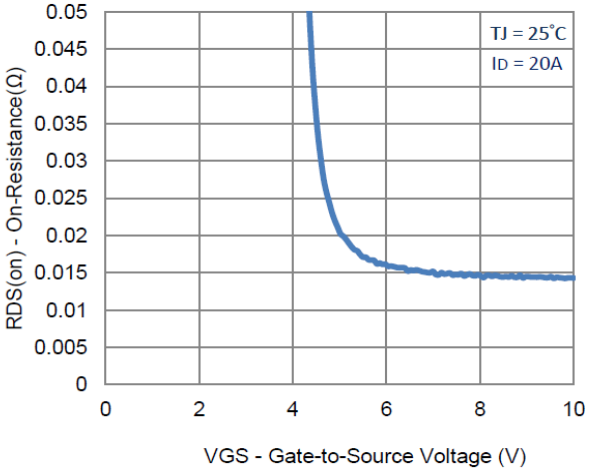
CHARACTERISTIC CURVE



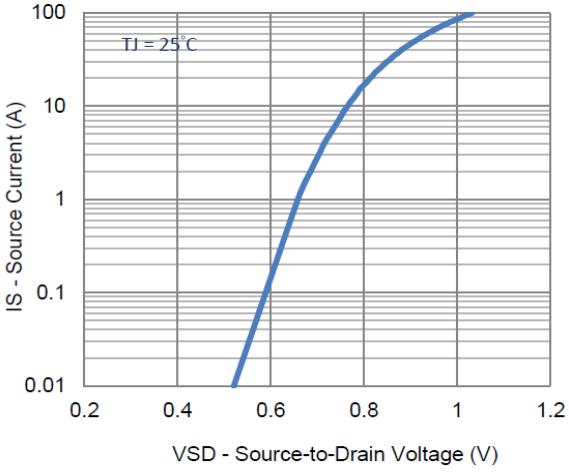
1. On-Resistance vs. Drain Current



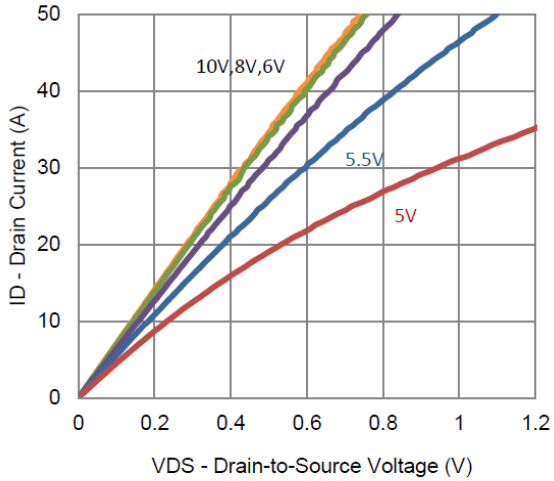
2. Transfer Characteristics



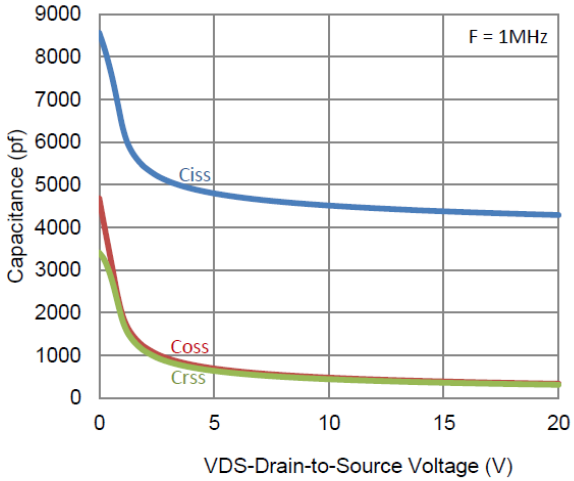
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

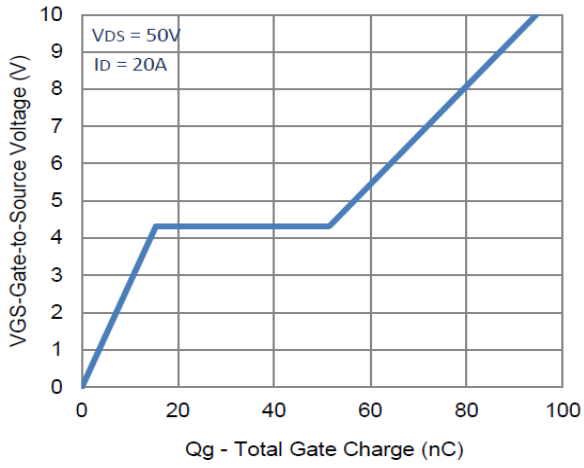


5. Output Characteristics

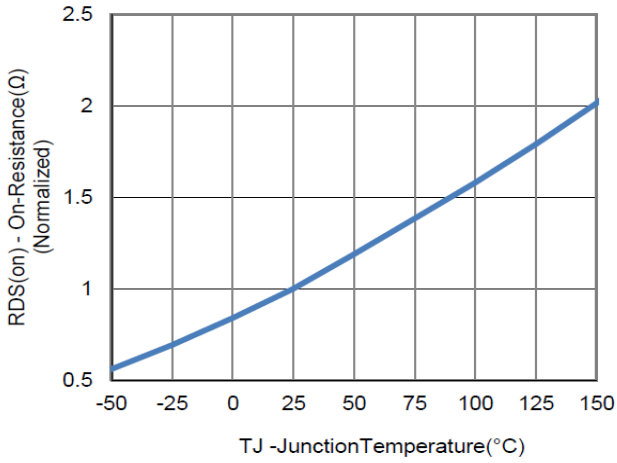


6. Capacitance

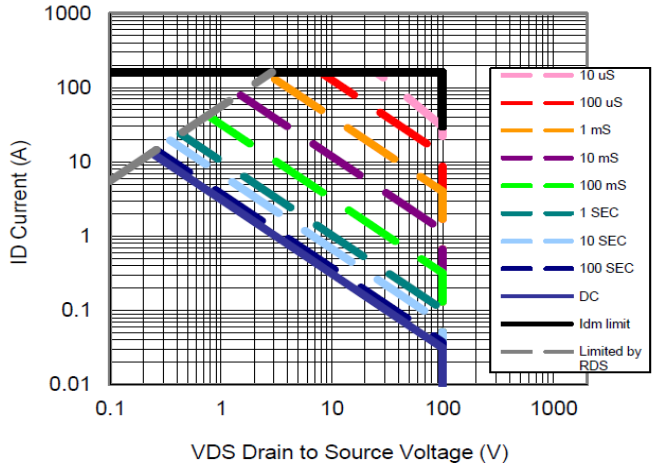
CHARACTERISTIC CURVE



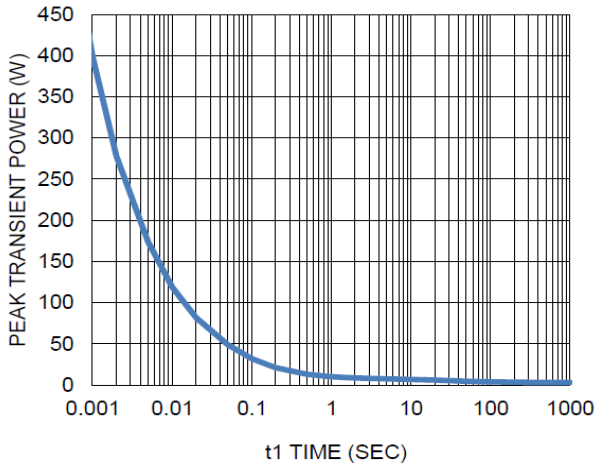
7. Gate Charge



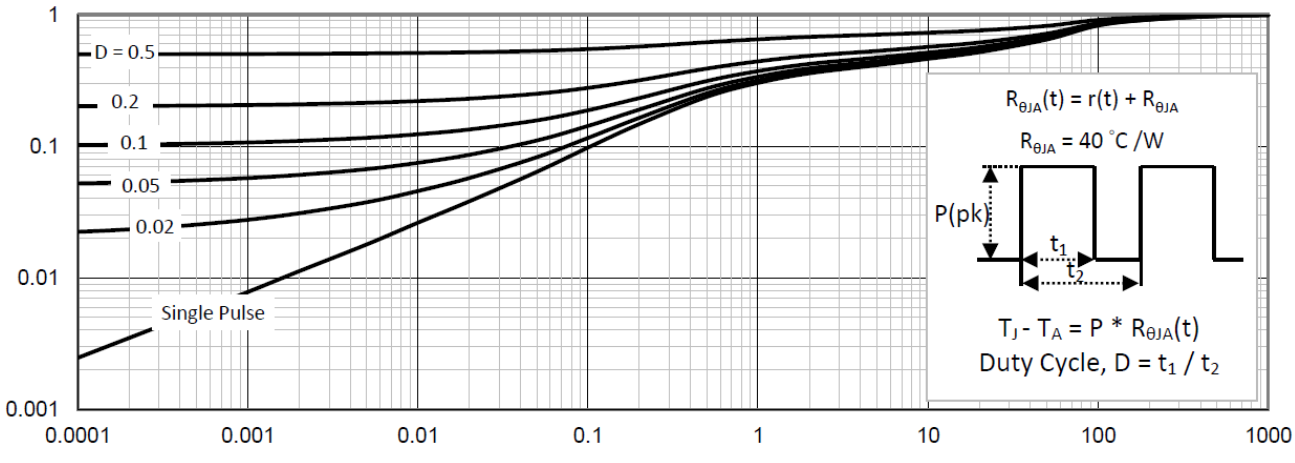
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient