Elektronische Bauelemente

SSD20N15

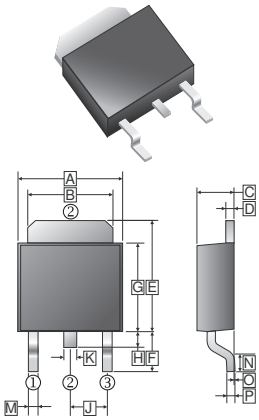
20A, 150V, $R_{DS(ON)}$ 70mΩ
N-Channel Enhancement MOSFET

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

FEATURES

- 150V, 20A, $R_{DS(ON)} \leqq 70m\Omega @ V_{GS}=10V$
- Super high dense cell design for extremely low $R_{DS(ON)}$
- High power and current handing capability
- Green Device Available

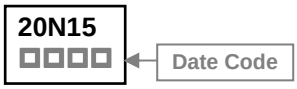
TO-252 (D-Pack)

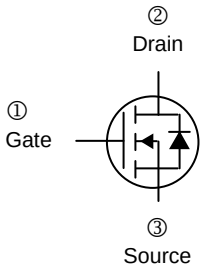


PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

MARKING





REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.336 REF.	
B	4.95	5.50	K	0.89 REF.	
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	0.58 REF.	
G	5.40	6.40			
H	0.60	1.20			

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current @V_{GS}=10V [1]	T_C=25℃	I_D	20	A
	T_C=100℃		14	A
Pulsed Drain Current [2]		I_{DM}	70	A
Total Power Dissipation [3]	T_C=25℃	P_D	50	W
	T_A=25℃		2	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	℃
Thermal Resistance Rating				
Maximum Thermal Resistance from Junction to Case [1]		$R_{\theta JC}$	2.5	℃ / W
Maximum Thermal Resistance from Junction to Ambient [1]		$R_{\theta JA}$	62.5	℃ / W

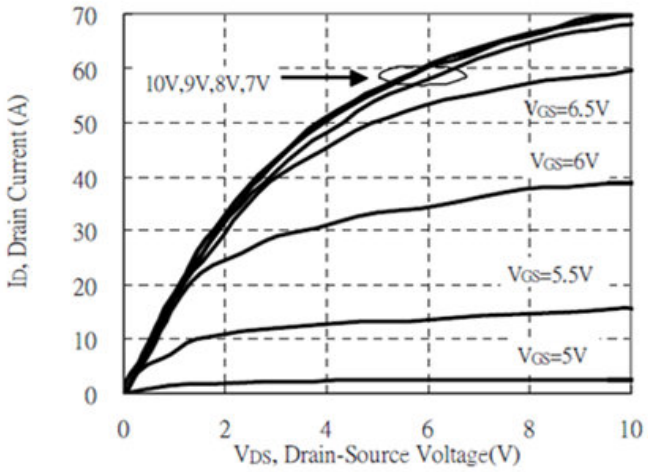
ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage		BV_{DSS}	150	-	-	V	V_{GS}=0, I_D=250μA
Gate-Threshold Voltage		$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Gate-Source Leakage Current		I_{GSS}	-	-	±100	nA	V_{GS}= ±25V
Drain-Source Leakage Current	T_J=25℃	I_{DSS}	-	-	1	μA	V_{DS}=120V, V_{GS} =0
	T_J=85℃		-	-	30		
Static Drain-Source On-Resistance [2]		$R_{DS(ON)}$	-	55	70	mΩ	V_{GS}=10V, I_D=15A
			-	65	85		V_{GS}=6V, I_D=10A
Total Gate Charge		Q_g	-	20	-	nC	I_D=15A V_{DS}=75V V_{GS}=10V
Gate-Source Charge		Q_{gs}	-	5.5	-		
Gate-Drain (“Miller”) Charge		Q_{gd}	-	7	-		
Turn-on Delay Time		$T_{d(on)}$	-	6	-	nS	V_{DS}=75V I_D=10A V_{GS}=10V R_{GEN}=3Ω
Rise Time		T_r	-	5	-		
Turn-off Delay Time		$T_{d(off)}$	-	13	-		
Fall Time		T_f	-	6	-		
Input Capacitance		C_{iss}	-	1270	-	pF	V_{GS}=0V V_{DS}=25V f =1MHz
Output Capacitance		C_{oss}	-	115	-		
Reverse Transfer Capacitance		C_{rss}	-	55	-		
Source-Drain Diode Characteristics							
Diode Forward Voltage [2]		V_{SD}	-	-	1.2	V	V_{GS}=0V, I_S=10A, T_J=25℃
Continuous Source Current [1,4]		I_S	-	-	20	A	V_D=V_G=0V, Force Current
Pulsed Source Current [2,4]		I_{SM}	-	-	70		
Reverse Recovery Time		T_{RR}	-	30	-	nS	I_F=10A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge		Q_{RR}	-	100	-	nC	

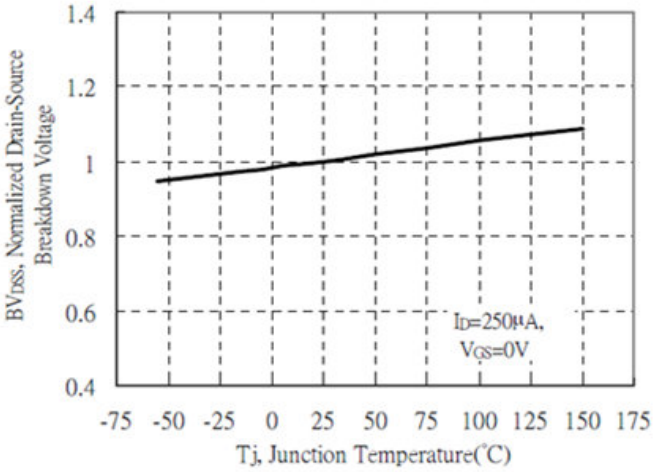
Notes:
1. The data is tested when the surface of the device is mounted on a 1 inch^2 FR-4 board with 2OZ copper, ≦10sec, 110℃ /W at steady state
2. The data is tested by the pulse: Pulse width ≦ 300us, duty cycle ≦ 2%
3. The power dissipation is limited by 150℃ juncti on temperature
4. The data is theoretically the same as I_D and I_{DM}; in real applications, it should be limited by the total power dissipation.

CHARACTERISTIC CURVES

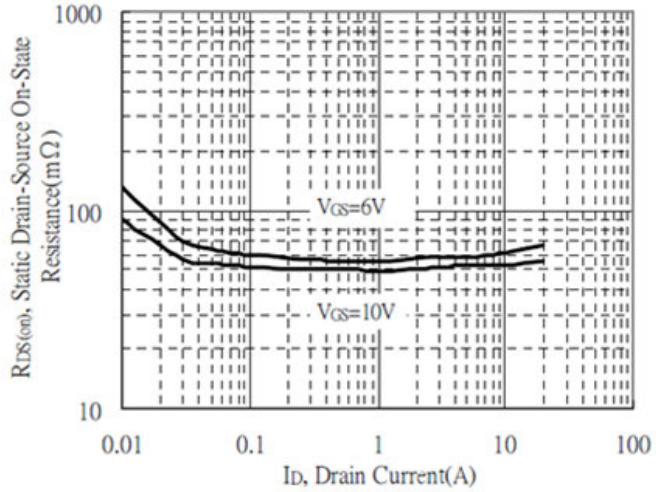
Typical Output Characteristics



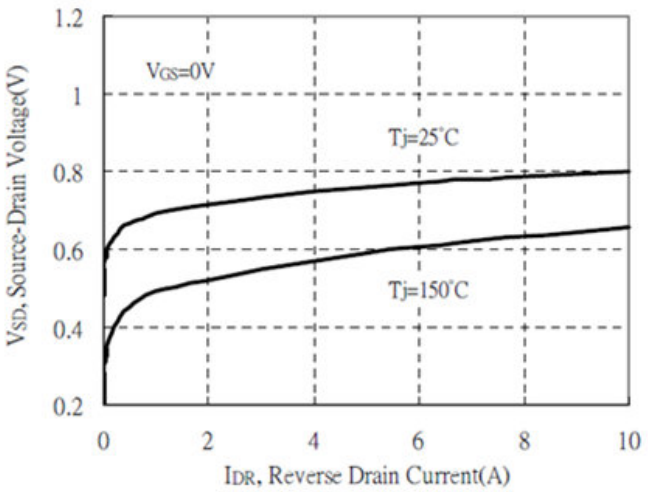
Brekdown Voltage vs Ambient Temperature



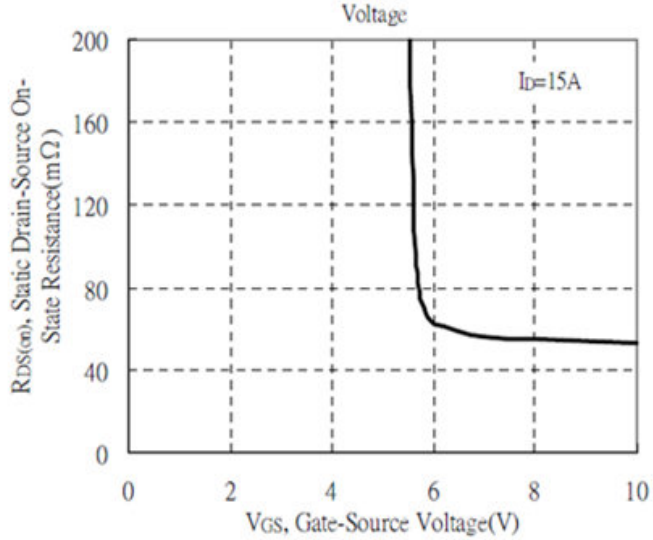
Static Drain-Source On-State resistance vs Drain Current



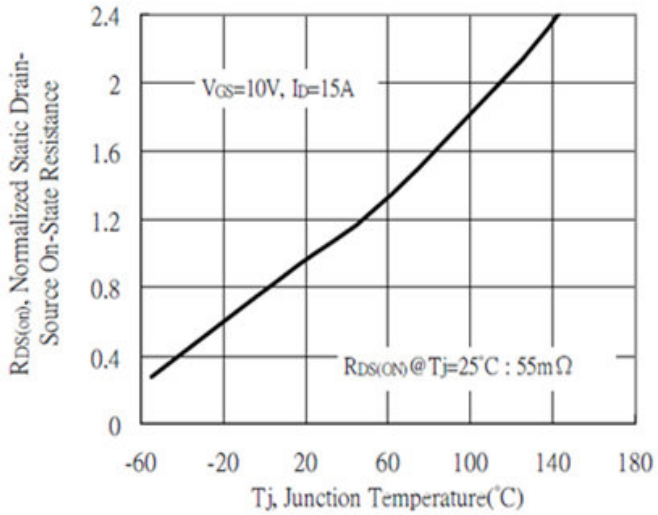
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

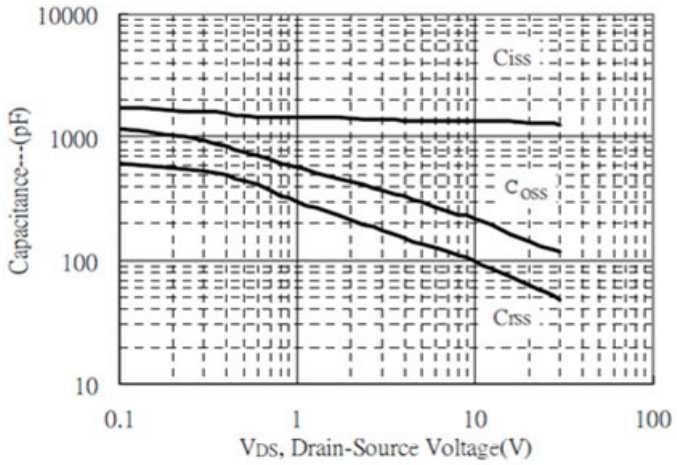


Drain-Source On-State Resistance vs Junction Tempearture

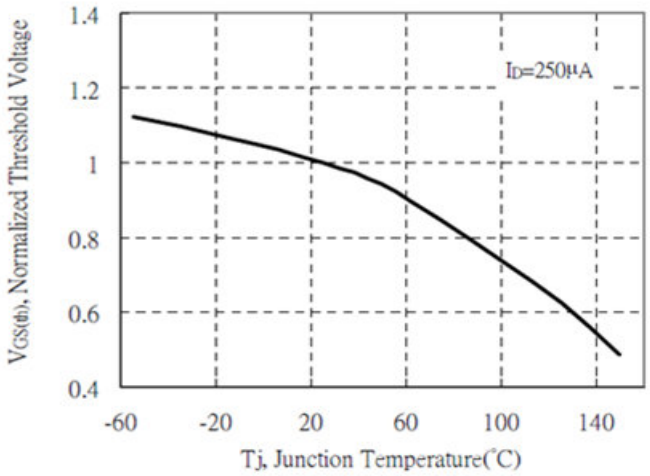


CHARACTERISTIC CURVES

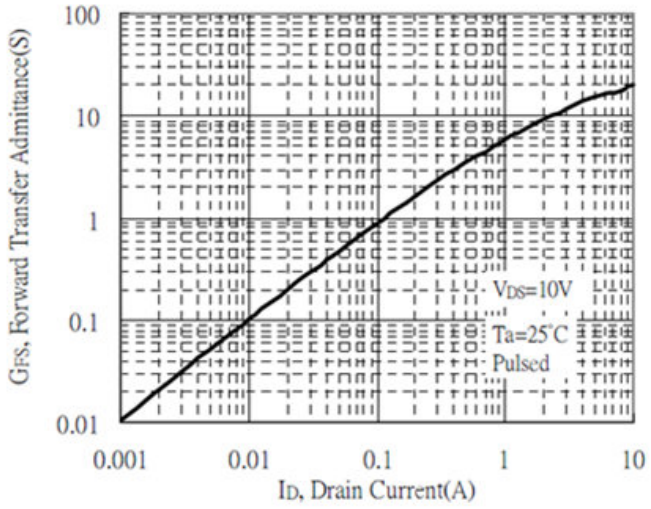
Capacitance vs Drain-to-Source Voltage



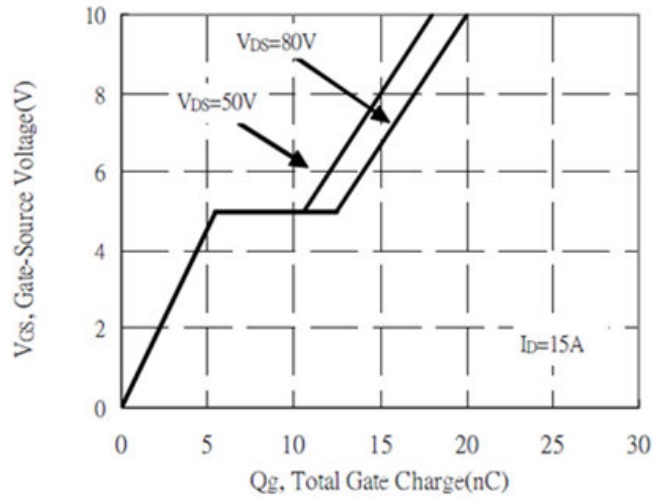
Threshold Voltage vs Junction Tempearture



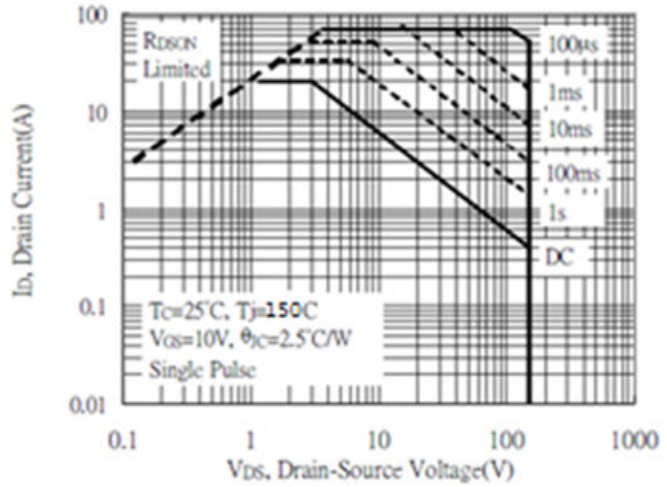
Forward Transfer Admittance vs Drain Current



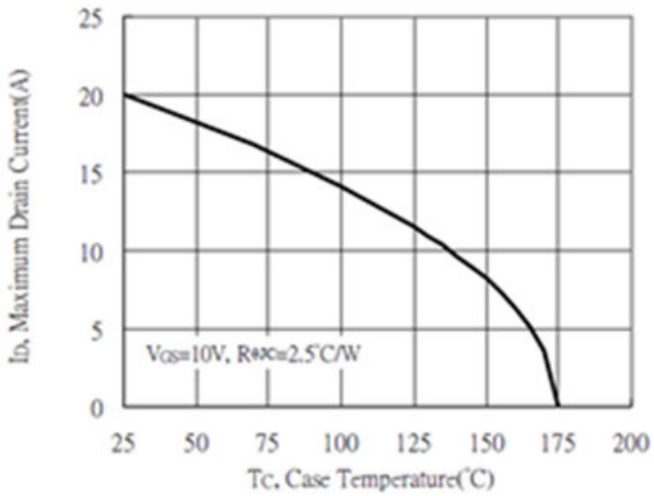
Gate Charge Characteristics



Maximum Safe Operating Area



Maximum Drain Current vs Case Temperature



CHARACTERISTIC CURVES