SSD12P10

-12A , -100V , $R_{DS(ON)}$ 210mΩ
P-Channel Enhancement MOSFET

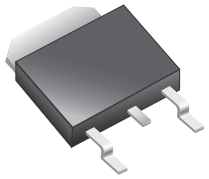
RoHS Compliant Product
A suffix of "-C" specifies halogen free

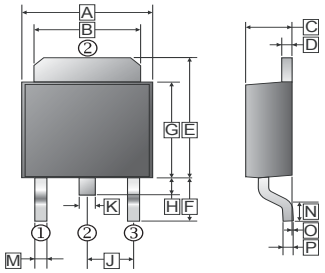
DESCRIPTION

The SSD12P10 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-252 package is universally preferred for all commercial-industrial surface mount applications.

TO-252(D-Pack)



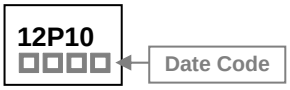


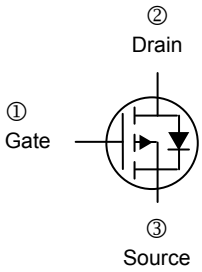
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.80	J	2.30 REF.	
B	5.20	5.50	K	0.64	0.90
C	2.15	2.40	M	0.50	1.1
D	0.45	0.58	N	0.9	1.65
E	6.8	7.5	O	0	0.15
F	2.40	3.0	P	0.43	0.58
G	5.40	6.25			
H	0.64	1.20			

FEATURES

- Simple Drive Requirement
- Lower On-resistance
- Fast Switching Characteristic
- RoHS Compliant

MARKING





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 @V_{GS}=10V	T_C=25°C	I_D	-12	A
	T_C=100°C		-10	A
Pulsed Drain Current [1]		I_{DM}	-48	A
Total Power Dissipation	T_C=25°C	P_D	35.7	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	°C
Thermal Resistance Rating				
Maximum Thermal Resistance Junction- case		$R_{\theta JC}$	3.5	°C / W
Maximum Thermal Resistance Junction-ambient		$R_{\theta JA}$	110	°C / W

Any changes of specification will not be informed individually.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	-100	-	-	V	V_{GS}=0, I_D= -250μA
Breakdown Voltage Temperature Coefficient	$\triangle BV_{DSS}$ /$\triangle T_J$	-	-0.096	-	V/°C	Reference to 25°C, I_D= -1mA
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-	-2.5	V	V_{DS}=V_{GS}, I_D= -250μA
Forward Transconductance	g_{fs}	-	8	-	S	V_{DS}= -10V, I_D= -8A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±32V
Drain-Source Leakage Current (T_J =25°C)	I_{DSS}	-	-	-1	μA	V_{DS}= -100V, V_{GS} =0
Drain-Source Leakage Current(T_J=150°C)		-	-	-25		V_{DS}= -80V, V_{GS} =0
Static Drain-Source On-Resistance[3]	$R_{DS(ON)}$	-	-	210	mΩ	V_{GS}= -10V, I_D= -8A
		-	-	250		V_{GS}= -4.5V, I_D= -6A
Total Gate Charge [2]	Q_g	-	16	-	nC	I_D= -8A V_{DS}= -80V V_{GS}= -4.5V
Gate-Source Charge	Q_{gs}	-	4.4	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	8.7	-		
Turn-on Delay Time[2]	$T_{d(on)}$	-	9	-	nS	V_{DS}= -50V I_D= -8A V_{GS}= -10V R_G=3.3Ω R_D=6.25Ω
Rise Time	T_r	-	14	-		
Turn-off Delay Time	$T_{d(off)}$	-	45	-		
Fall Time	T_f	-	40	-		
Input Capacitance	C_{iss}	-	1590	-	pF	V_{GS} =0 V_{DS}= -25V f =1.0MHz
Output Capacitance	C_{oss}	-	110	-		
Reverse Transfer Capacitance	C_{rss}	-	70	-		
Gate Resistance	Rg	-	8	12	Ω	f=1.0MHz
Source-Drain Diode						
Forward On Voltage[2]	V_{SD}	-	-	-1.3	V	I_S= -12A, V_{GS}=0
Continuous Source Current(Body Diode)	I_S	-	-	-12	A	V_D=V_G=0V, V_S =1.3V
Pulsed Source Current(Body Diode) [1]	I_{SM}	-	-	-48	A	

Notes:
1. Pulse width limited by safe operating area.
2. Pulse width ≦300us, duty cycle≦2%.

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CHARACTERISTIC CURVES

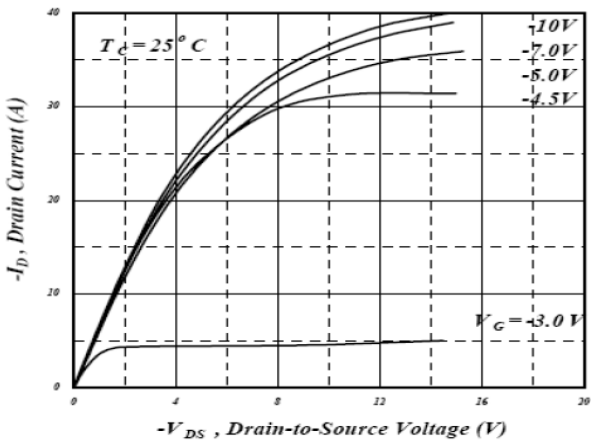

Fig 1. Typical Output Characteristics

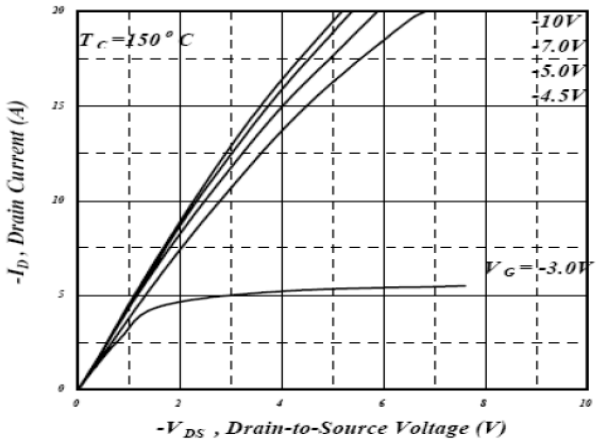

Fig 2. Typical Output Characteristics

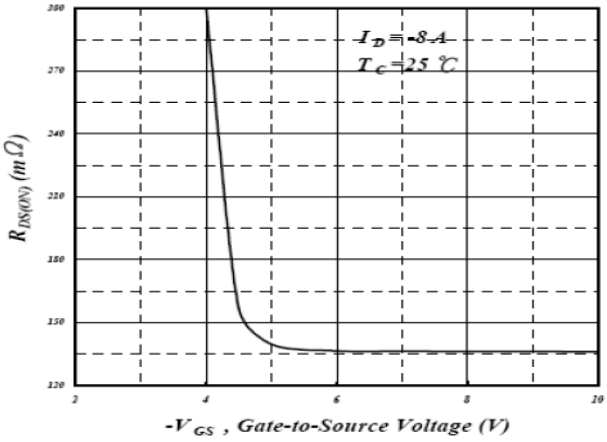

Fig 3. On-Resistance v.s. Gate Voltage

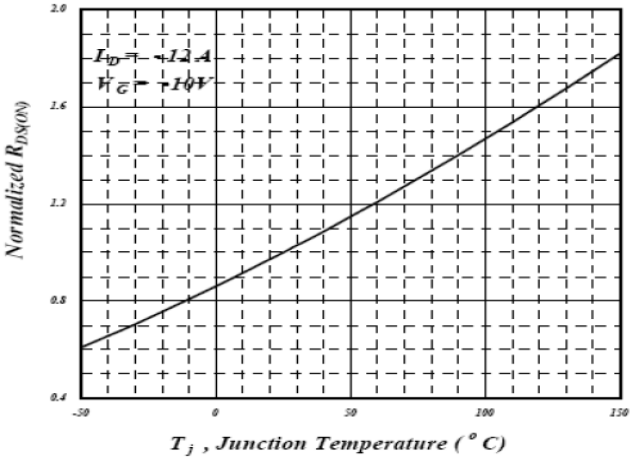

Fig 4. Normalized On-Resistance v.s. Junction Temperature

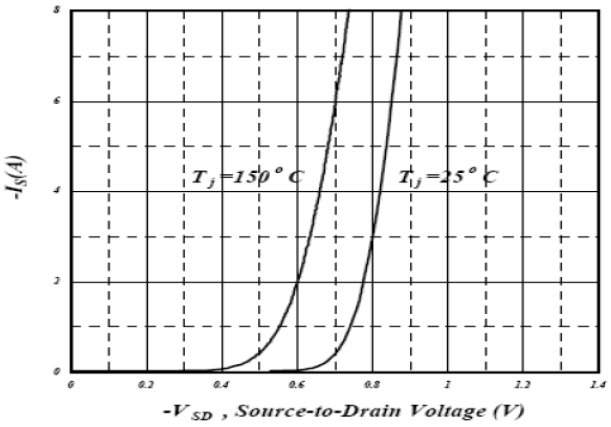

Fig 5. Forward Characteristic of Reverse Diode

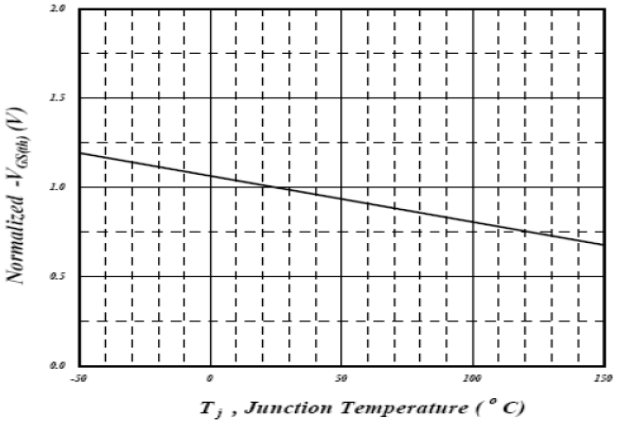

Fig 6. Gate Threshold Voltage v.s. Junction Temperature

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CHARACTERISTIC CURVES

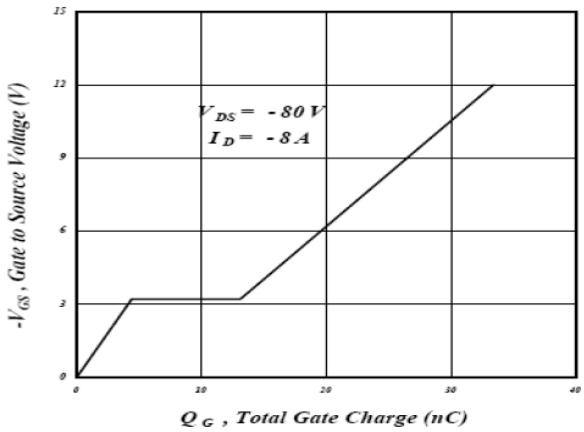

Fig 7. Gate Charge Characteristics

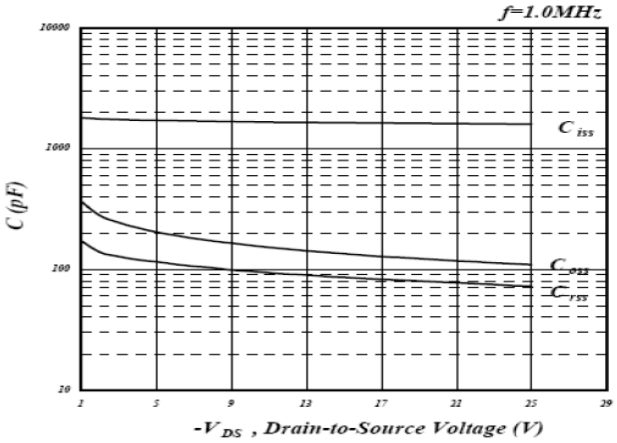

Fig 8. Typical Capacitance Characteristics

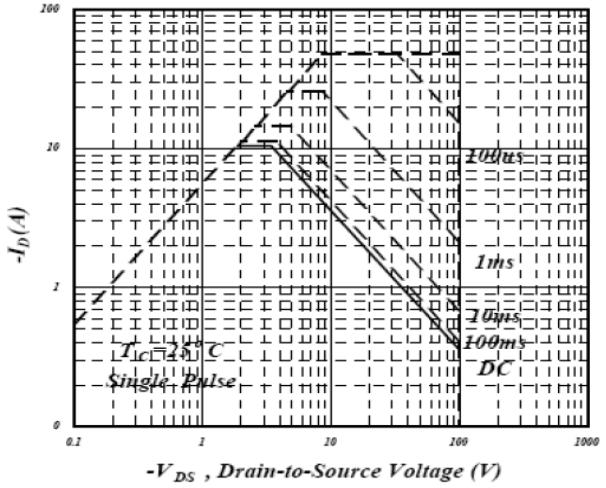

Fig 9. Maximum Safe Operating Area

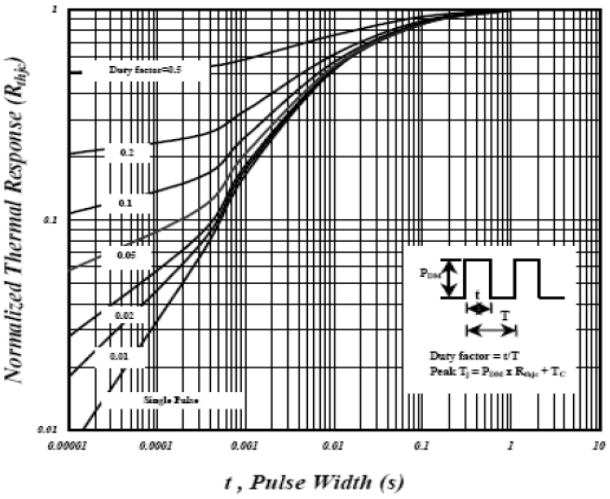

Fig 10. Effective Transient Thermal Impedance

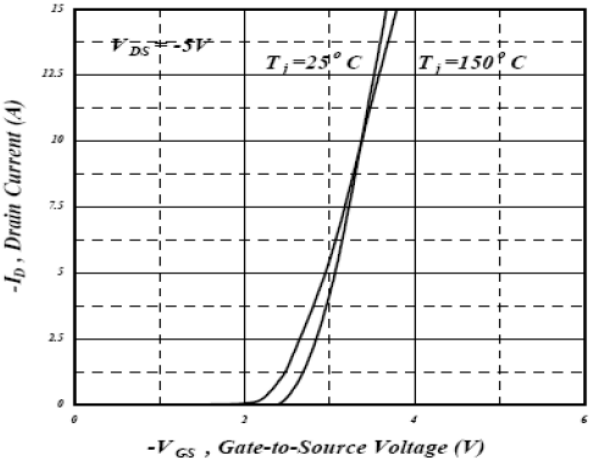

Fig 11. Transfer Characteristics

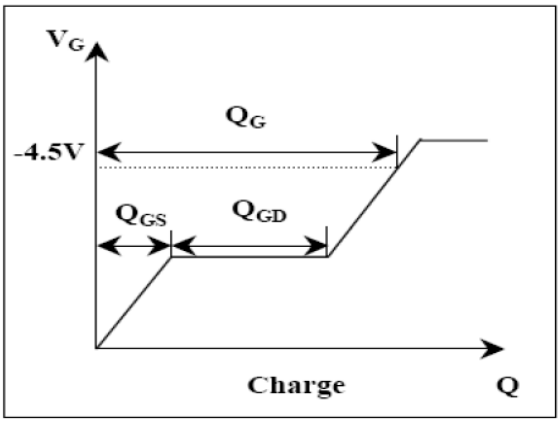

Fig 12. Gate Charge Waveform

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