

RoHS Compliant Product

Description

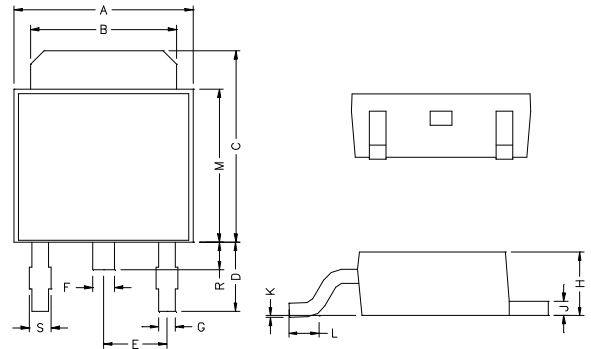
The SSD408 uses advanced trench technology to provide excellent on-resistance and low gate charge.

The TO-252 package is universally preferred for all commercial-industrial surface mount applications and suited for use as a load switch or in PWM applications.

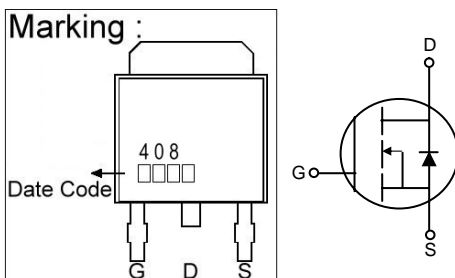
Features

- * Simple Drive Requirement
- * Lower On-resistance
- * Fast Switching Characteristic

TO-252



Marking :



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.80	G	0.50	0.70
B	5.20	5.50	H	2.20	2.40
C	6.80	7.20	J	0.45	0.55
D	2.20	2.80	K	0	0.15
E	2.30 REF.		L	0.90	1.50
F	0.70	0.90	M	5.40	5.80
S	0.60	0.90	R	0.80	1.20

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current, V _{GS} @10V	I _D @T _C =25°C	18	A
Continuous Drain Current, V _{GS} @10V	I _D @T _C =100°C	14	A
Pulsed Drain Current ¹	I _{DM}	70	A
Total Power Dissipation	P _D @T _C =25°C	60	W
Linear Derating Factor		0.4	W/°C
Single Pulse Avalanche Energy ²	E _{AS}	60	mJ
Single Pulse Avalanche Current	I _{AS}	35	A
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55 ~ +175	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case	R _{thj-c}	2.5	°C/W
Thermal Resistance Junction-ambient	R _{thj-a}	50	°C/W

Electrical Characteristics (T_j = 25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	V _{GS} =0, I _D =250μA
Gate Threshold Voltage	V _{GS(th)}	1.0	-	2.5	V	V _{DS} =V _{GS} , I _D =250μA
Forward Transconductance	g _{fs}	-	25	-	S	V _{DS} =5V, I _D =18A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±20V
Drain-	I _{DSS}	-	-	1	μA	V _{DS} =30V, V _{GS} =0
Drain-Source Leakage Current(T _j =55°C)		-	-	5	μA	V _{DS} =24V, V _{GS} =0
Static Drain-Source On-Resistance ³	R _{DS(ON)}	-	-	18	mΩ	V _{GS} =10V, I _D =18A
		-	-	27		V _{GS} =4.5V, I _D =10A
Total Gate Charge ³	Q _g	-	19.8	25	nC	I _D =18A V _{DS} =15V V _{GS} =10V
Gate-Source Charge	Q _{gs}	-	2.5	-		
Gate-Drain ("Miller") Change	Q _{gd}	-	3.5	-		
Turn-on Delay Time ³	T _{d(on)}	-	4.5	-	ns	V _{DS} =15V V _{GS} =10V R _G =3Ω R _L =0.82Ω
Rise Time	T _r	-	3.9	-		
Turn-off Delay Time	T _{d(off)}	-	17.4	-		
Fall Time	T _f	-	3.2	-		
Input Capacitance	C _{iss}	-	1040	1250	pF	V _{GS} =0V V _{DS} =15V f=1.0MHz
Output Capacitance	C _{oss}	-	180	-		
Reverse Transfer Capacitance	C _{rss}	-	110	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ³	V _{SD}	-	-	1.0	V	I _S =1A, V _{GS} =0V
Continuous Source Current (Body Diode)	I _S	-	-	18	A	
Reverse Recovery Time ³	T _{rr}	-	19	-	ns	I _S =18A, V _{GS} =0V di/dt=100A/μs
Reverse Recovery Charge	Q _{rr}	-	8	-	nC	

Notes: 1. Pulse width limited by safe operating area.

2. Staring T_j=25°C, V_{DD}=25V, L=0.1mH, R_G=25Ω.

3. Pulse width ≤ 300μs, duty cycle ≤ 2%.

Characteristics Curve

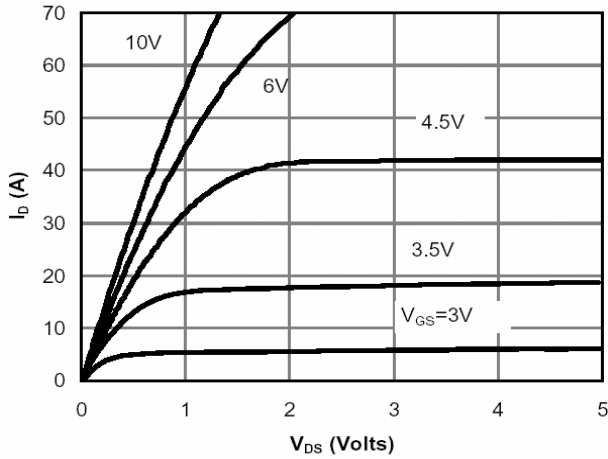


Fig 1. Typical Output Characteristics

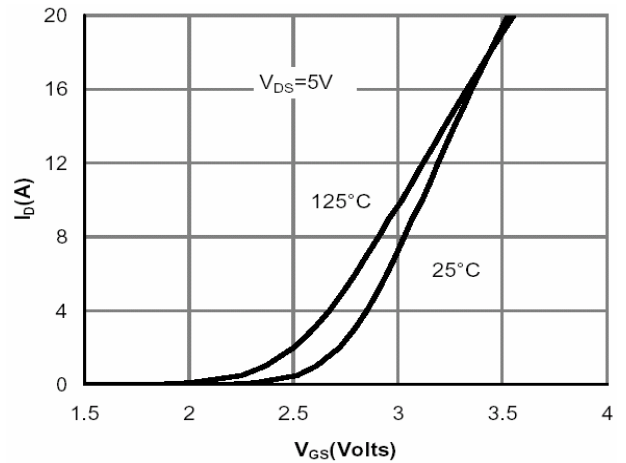


Fig 2. Typical Output Characteristics

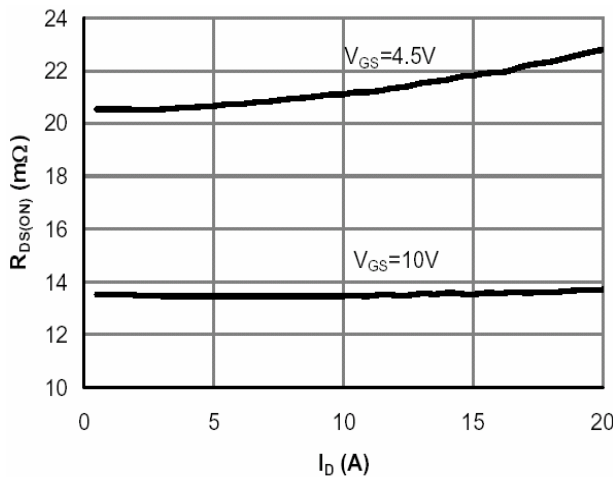


Fig 3. On-Resistance v.s. Gate Voltage

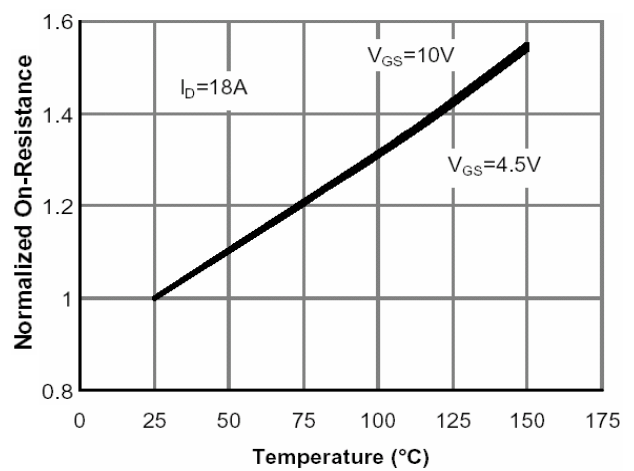


Fig 4. Normalized On-Resistance v.s. Junction Temperature

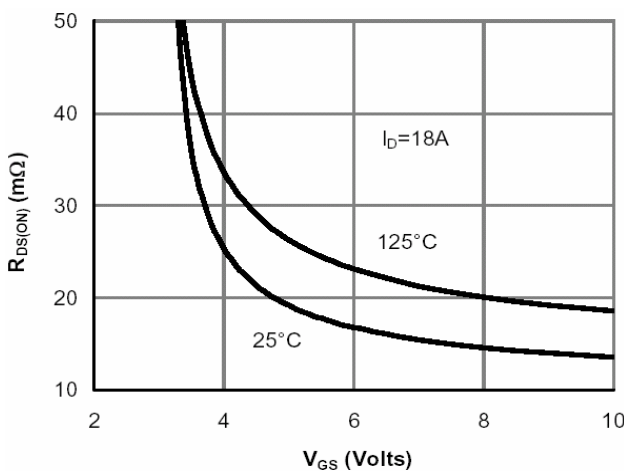


Fig 5. Maximum Drain Current v.s. Case Temperature

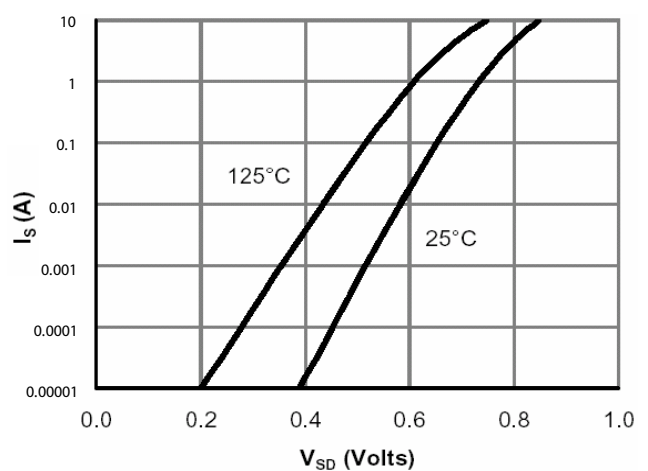


Fig 6. Type Power Dissipation

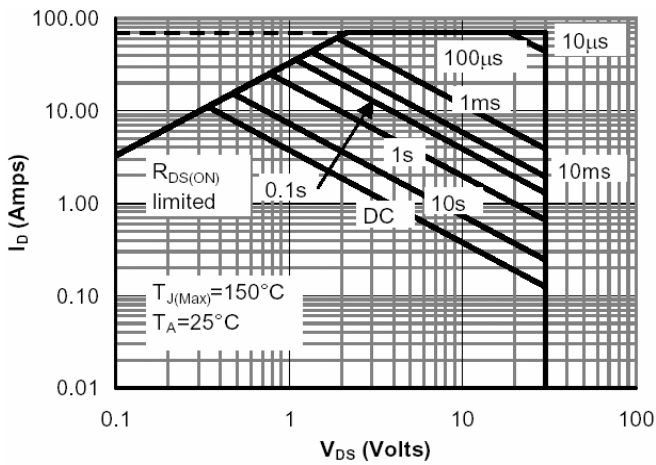


Fig 7. Maximum Safe Operating Area

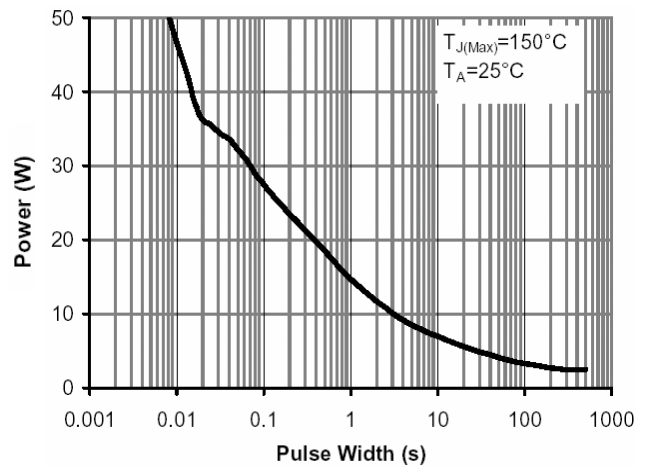


Fig 8. Effective Transient Thermal Impedance

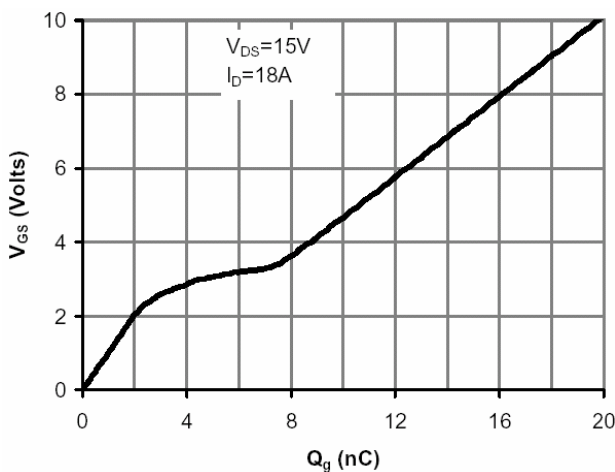


Fig 9. Gate Charge Characteristics

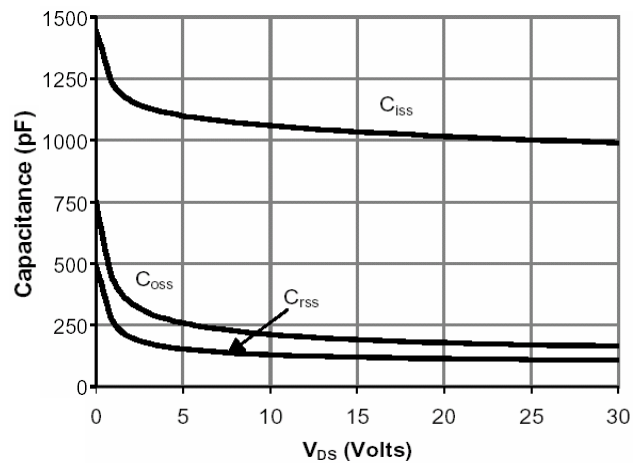


Fig 10. Typical Capacitance Characteristics

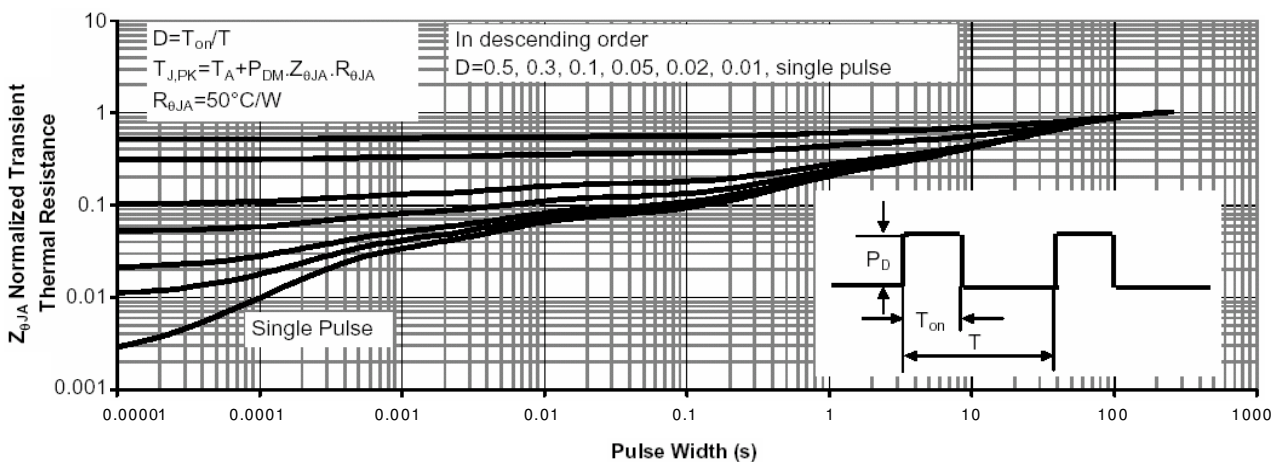


Fig 11. Normalized Maximum Transient Thermal Impedance