

Description

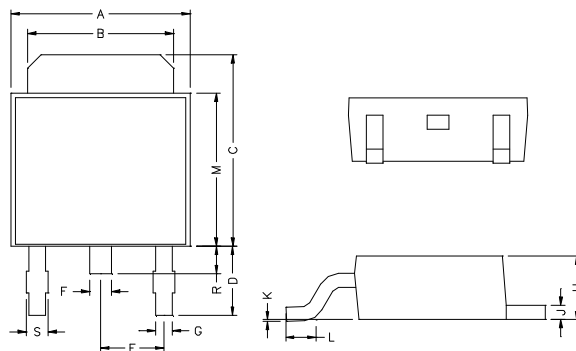
The SSD408 uses advanced trench technology to provide excellent on-resistance and low gate charge.

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.

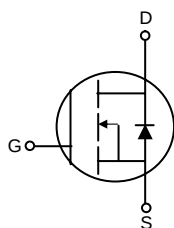
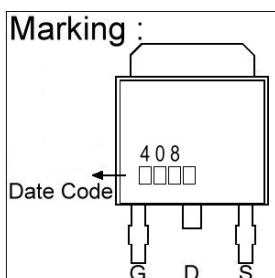
Features

- * 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, $V_{GS}@10V$	$I_D @ T_C=25^\circ C$	18	A
Continuous Drain Current, $V_{GS}@10V$	$I_D @ T_C=100^\circ C$	14	A
Pulsed Drain Current ¹	I_{DM}	70	A
Total Power Dissipation	$P_D @ T_C=25^\circ C$	60	W
Linear Derating Factor		0.4	W/ $^\circ C$
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	$^\circ C$

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-case Max.	R_{thj-c}	2.5	$^\circ C/W$
Thermal Resistance Junction-ambient Max.	R_{thj-a}	50	$^\circ C/W$

Electrical Characteristics ($T_j = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	30	-	-	V	$V_{GS}=0, I_D=250\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	1.0	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Forward Transconductance	g_{fs}	-	25	-	S	$V_{DS}=5V, I_D=18A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS} = \pm 20V$
Drain-	I_{DSS}	-	-	1	μA	$V_{DS}=30V, V_{GS}=0$
Drain-Source Leakage Current($T_j=55^\circ C$)		-	-	5	μA	$V_{DS}=24V, V_{GS}=0$
Static Drain-Source On-Resistance ³	$R_{DS(ON)}$	-	-	18	m Ω	$V_{GS}=10V, I_D=18A$
		-	-	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	$V_{DS}=15V$ $V_{GS}=10V$ $R_G=3\Omega$ $R_L=0.82\Omega$
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	$I_S=18A, V_{GS}=0V$ $di/dt=100A/\mu s$
Reverse Recovery Charge	Q_{rr}	-	8	-	nC	

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

2. Staring $T_j=25^\circ C$, $V_{DD}=25V$, $L=0.1mH$, $R_G=25\Omega$.

3. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Characteristics Curve

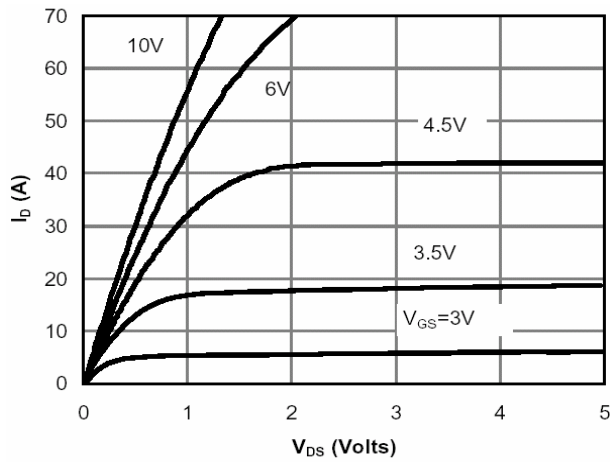


Fig 1. Typical Output Characteristics

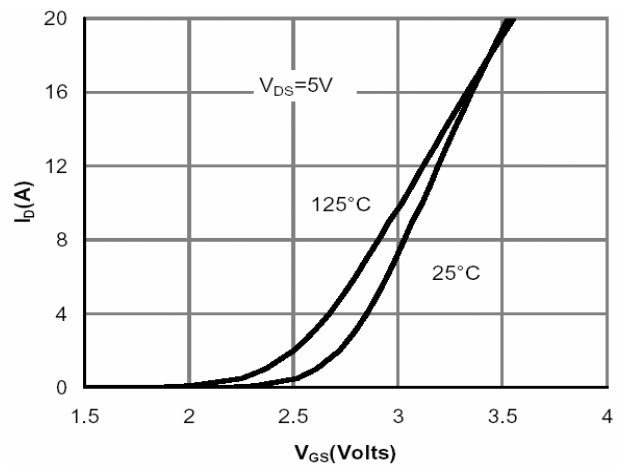


Fig 2. Typical Output Characteristics

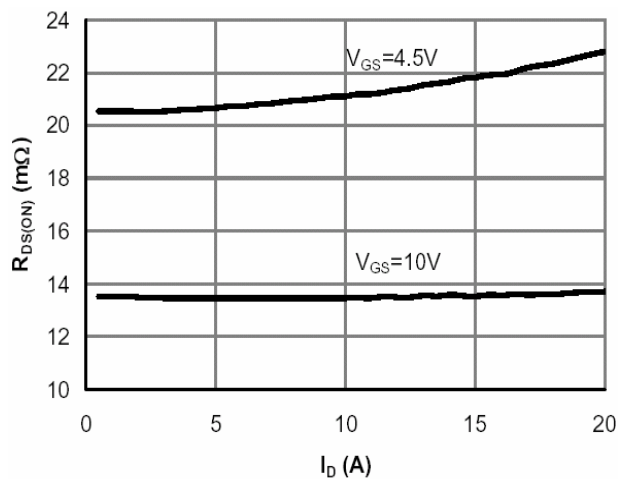


Fig 3. On-Resistance v.s. Gate Voltage

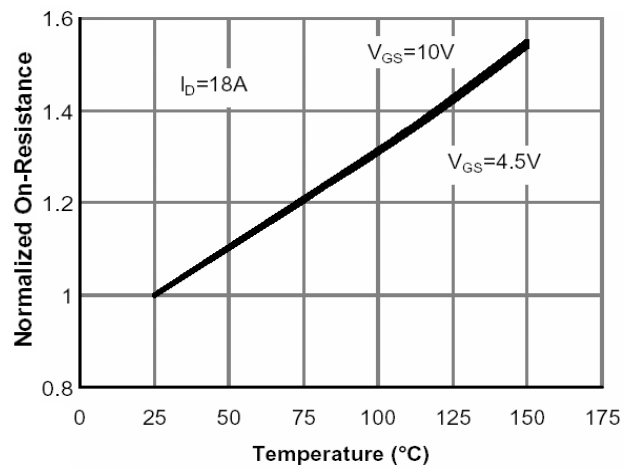


Fig 4. Normalized On-Resistance v.s. Junction Temperature

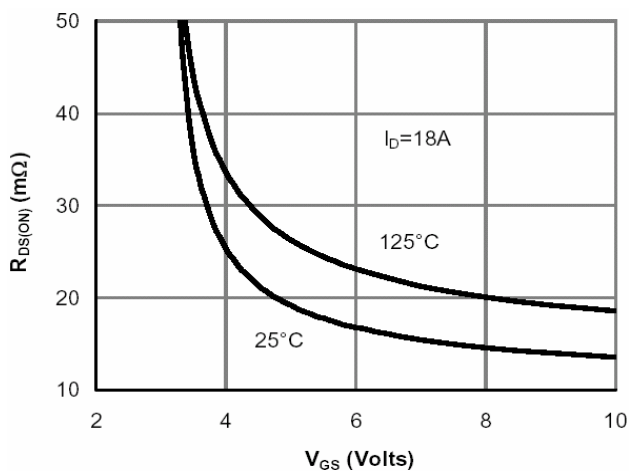


Fig 5. Maximum Drain Current v.s. Case Temperature

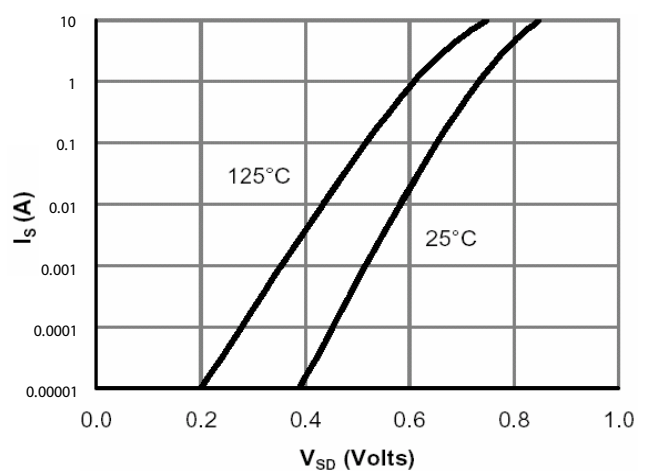


Fig 6. Type Power Dissipation

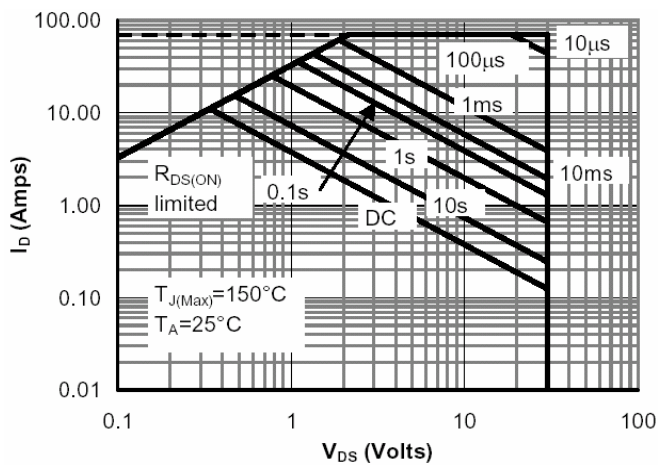


Fig 7. Maximum Safe Operating Area

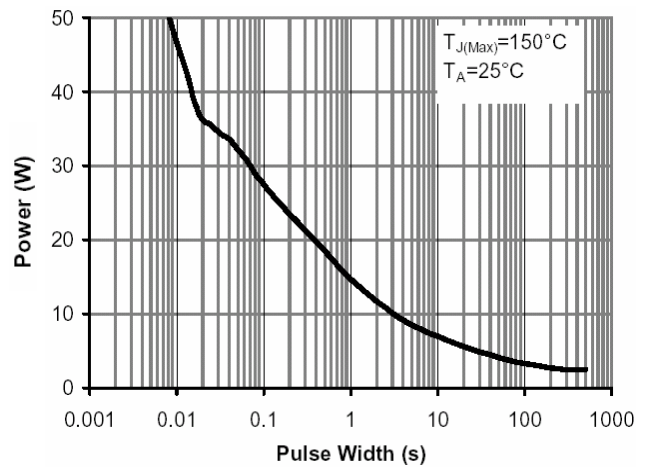


Fig 8. Effective Transient Thermal Impedance

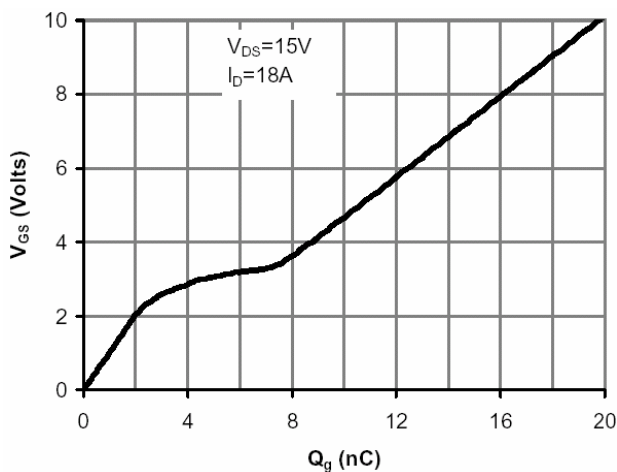


Fig 9. Gate Charge Characteristics

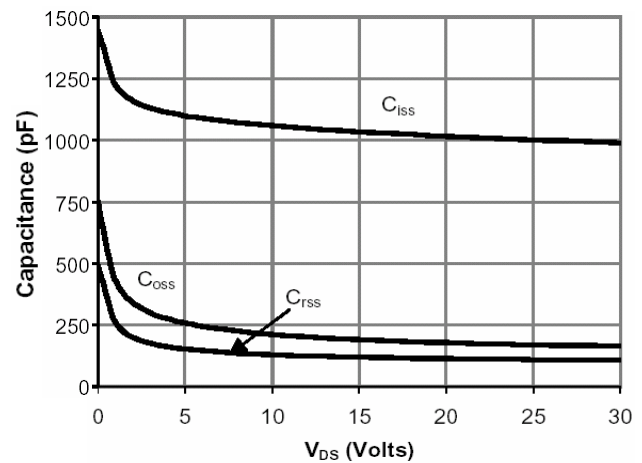


Fig 10. Typical Capacitance Characteristics

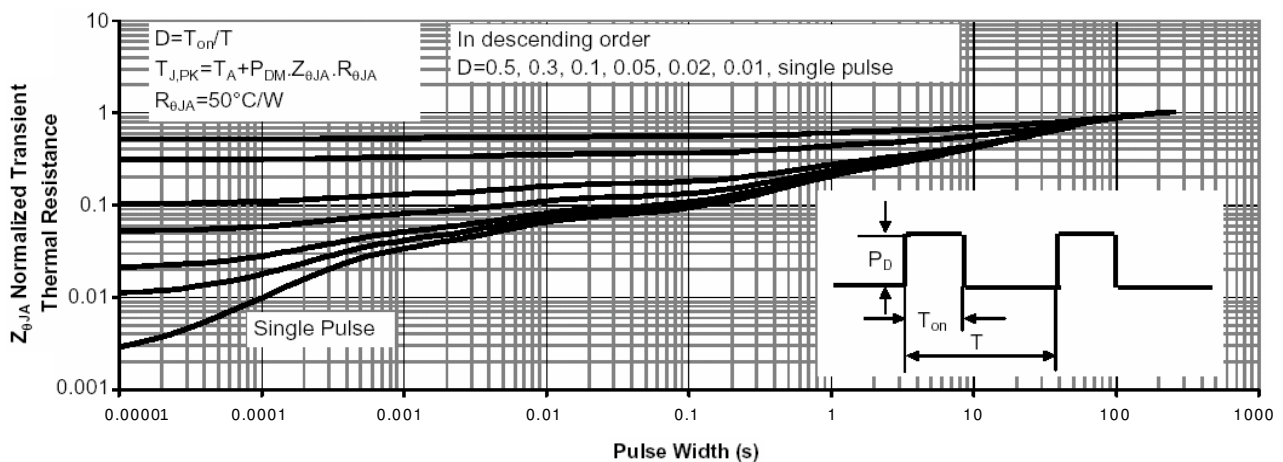


Fig 11. Normalized Maximum Transient Thermal Impedance