

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
200V	300mΩ@10V	9A

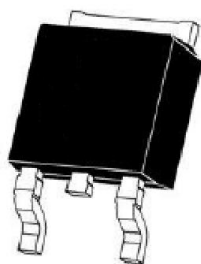
Feature

- Self-aligned planar technology
- Low conduction loss

Application

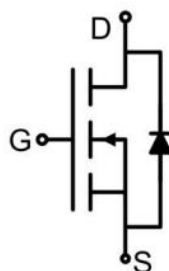
- Uninterruptible power supply (UPS)
- Power factor correction (PFC)

Package

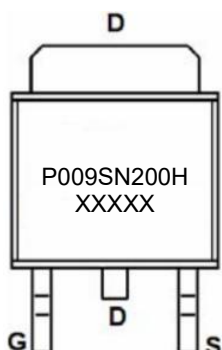


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	200	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	9	A
Pulsed Drain Current ¹⁾	I _{DM}	36	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	100	mJ
Power Dissipation ³⁾	P _D	74	W
Thermal Resistance Junction to Case	R _{θJC}	1.7	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature Range	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	200			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =200V, V _{GS} =0V			5	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.5A		230	300	mΩ
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		684		pF
Output Capacitance	C _{oss}			103		
Reverse Transfer Capacitance	C _{rss}			37		
Total Gate Charge	Q _g	V _{DS} =160V, V _{GS} =10V, I _D =9A		23		nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			10		
Turn-on delay time	t _{d(on)}	V _{DS} =100V, I _D =9A, R _G =25Ω		12		nS
Turn-on rise time	t _r			22		
Turn-off delay time	t _{d(off)}			50		
Turn-off fall time	t _f			48		
Source-Drain Diode characteristics						
Diode Forward Current	I _S	T _C =25°C			9	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =9A			1.4	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =9A		190		nS
Reverse Recovery Charge	Q _{rr}	di/dt =100A/μs		1.7		μC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The EAS data shows Max. rating . I_{AS}=7.5A, V_{DD}=50V, R_G=25Ω, Starting T_J= 25°C.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

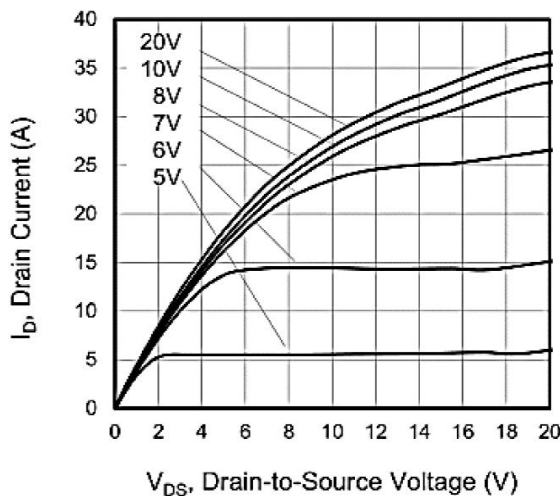


Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

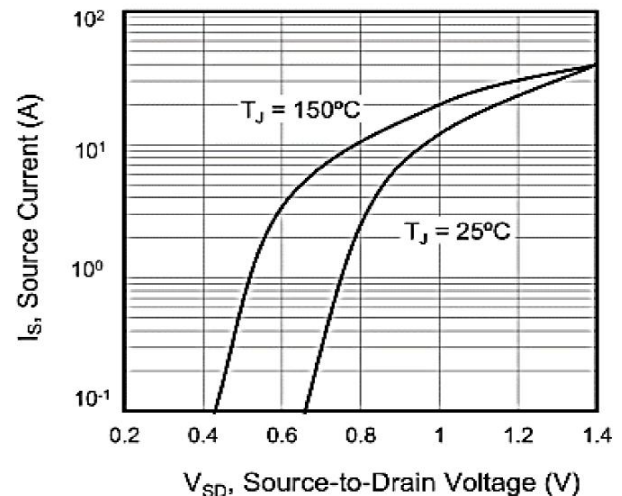


Figure 2. Body Diode Forward Voltage

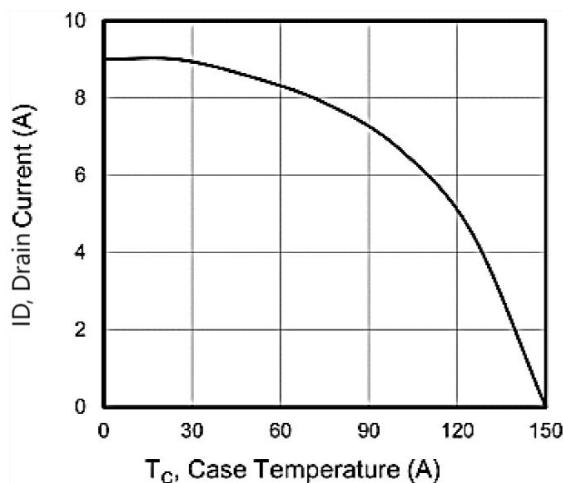


Figure 3. Drain Current vs. Temperature

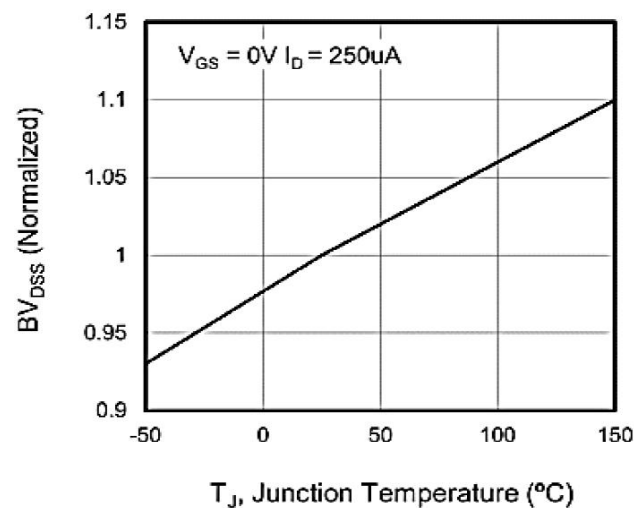


Figure 4. BV_{DSS} Variation vs. Temperature

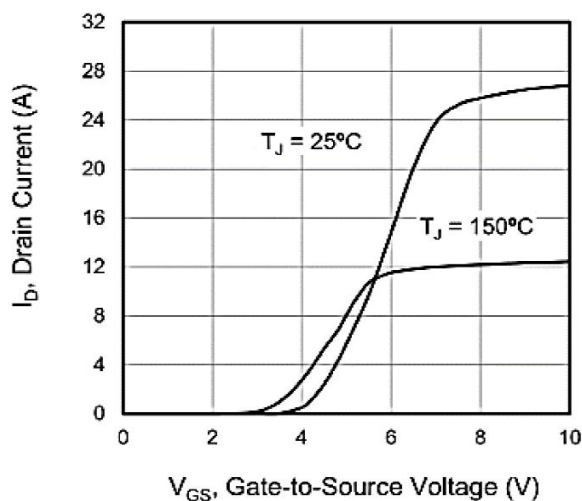


Figure 5. Transfer Characteristics

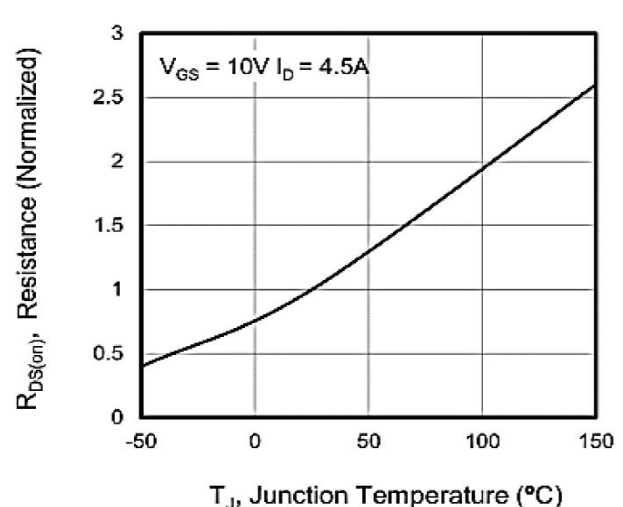


Figure 6. On-Resistance vs. Temperature

Typical Characteristics

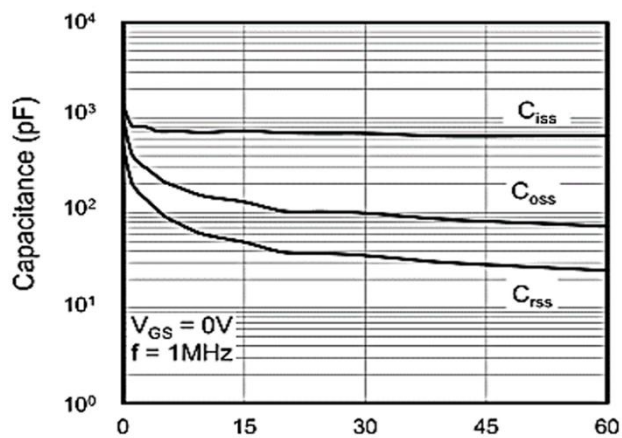


Figure 7. Capacitance

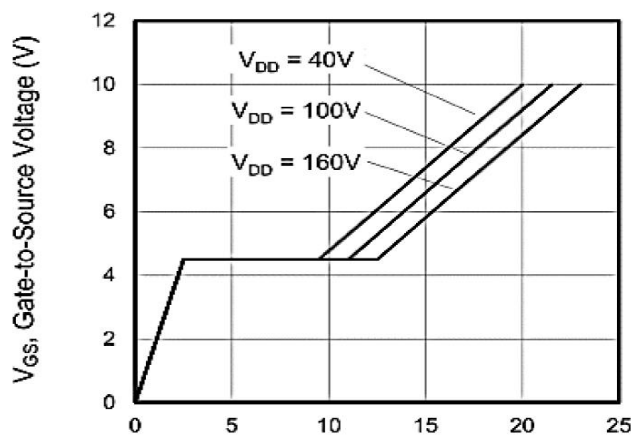


Figure 8. Gate Charge

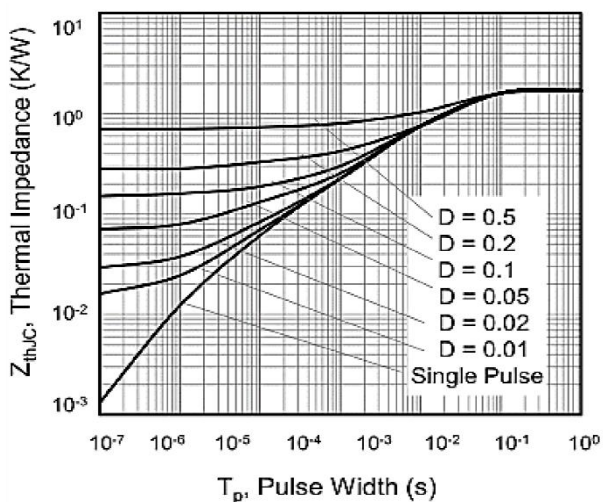
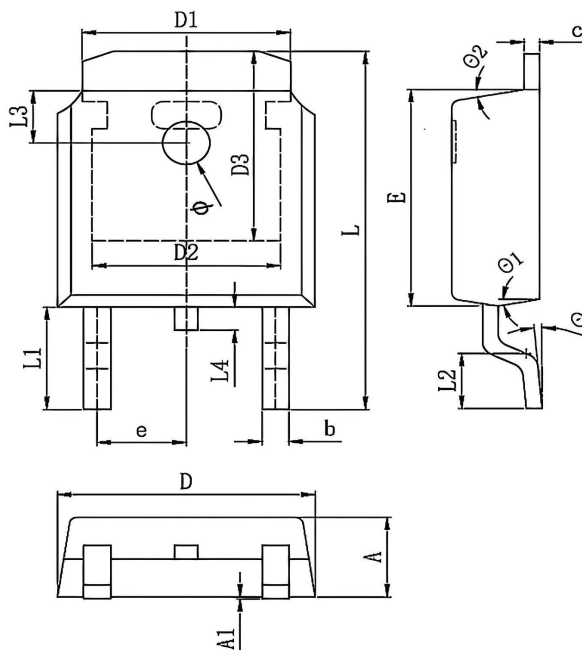


Figure 9 . Transient Thermal Impedance

TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.100	2.500	0.083	0.098
A1	0.000	0.128	0.000	0.005
b	0.640	0.860	0.025	0.034
c	0.450	0.600	0.018	0.024
D	6.400	6.800	0.252	0.268
D1	5.330 REF.		0.210 REF.	
D2	4.830 REF.		0.190 REF.	
D3	5.250 REF.		0.207 REF.	
E	5.900	6.300	0.232	0.248
e	2.286 TYP.		0.090 REF.	
L	9.800	10.400	0.386	0.409
L1	2.888 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.650 REF.		0.065 REF.	
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
θ	0°	10°	0°	10°
θ1	5°	10°	5°	10°
θ2	5°	10°	5°	10°