

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
700V	580mΩ@10V	9.5A

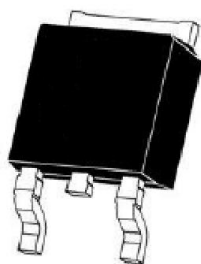
Feature

- Low on-resistance
- Low Gate Charge

Application

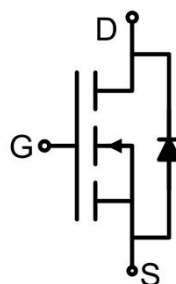
- Power factor correction (PFC)
- Uninterruptible Power Supply (UPS)

Package

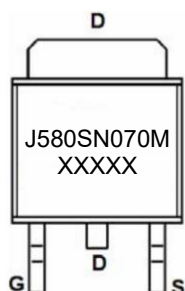


TO-252AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	700	V
Gate-Source Voltage	V _{GS}	±30	V
Continuous Drain Current	I _D	9.5	A
Pulsed Drain Current ¹⁾	I _{DM}	21	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	150	mJ
Power Dissipation ³⁾	P _D	38	W
Thermal Resistance Junction to Case	R _{θJC}	3.3	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature	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	700			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5	3.5	4.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.5A		520	580	mΩ
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f =1MHz		443		pF
Output Capacitance	C _{oss}			23		
Reverse Transfer Capacitance	C _{rss}			1		
Total Gate Charge	Q _g	V _{DS} =325V, V _{GS} =10V, I _D =7A		10.5		nC
Gate-Source Charge	Q _{gs}			2.5		
Gate-Drain Charge	Q _{gd}			4.2		
Turn-on delay time	t _{d(on)}	V _{DS} =325V, V _{GS} =10V, I _D =7A R _G =25Ω		14.5		nS
Turn-on rise time	t _r			18		
Turn-off delay time	t _{d(off)}			47.5		
Turn-off fall time	t _f			12.5		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				9.5	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =7A			1.3	V
Reverse recovery time	T _{rr}	V _{GS} =0V, I _F =7A di/dt =100 A/μs		170		nS
Reverse recovery charge	Q _{rr}			1.5		μC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2) The EAS data shows Max. rating . L=0.5mH, I_{AS} = 3.2A, V_{DD} = 50V, R_G = 25Ω.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production.

Typical Characteristics

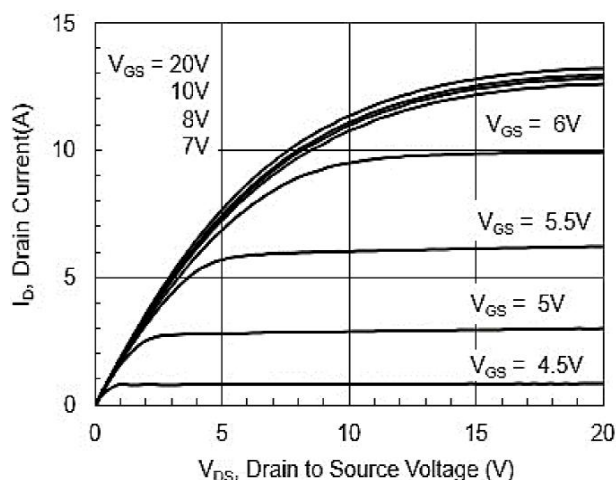


Figure1: Output characteristics

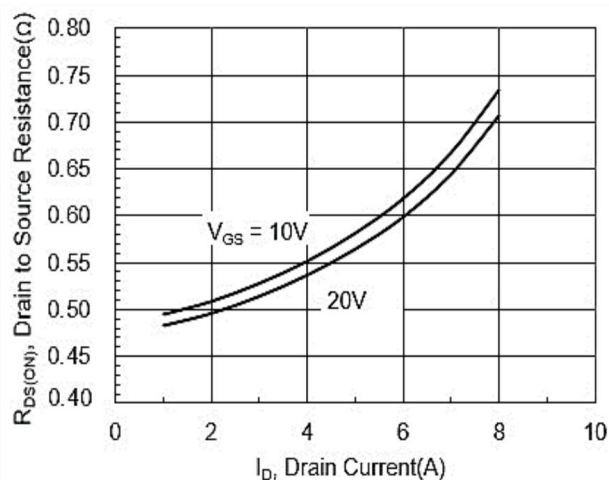


Figure2: Drain source on state resistance

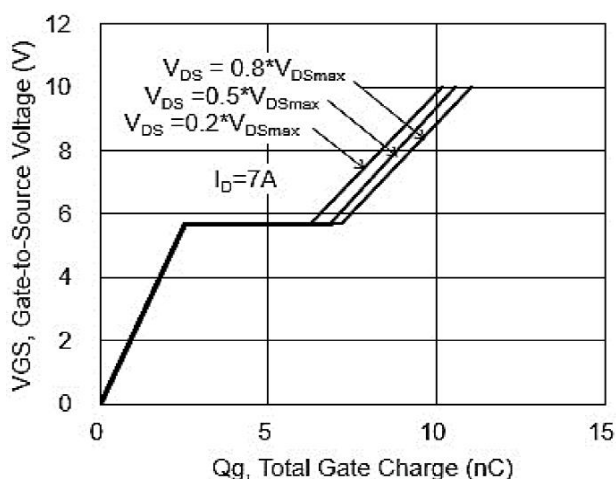


Figure3: Gate charge characteristics

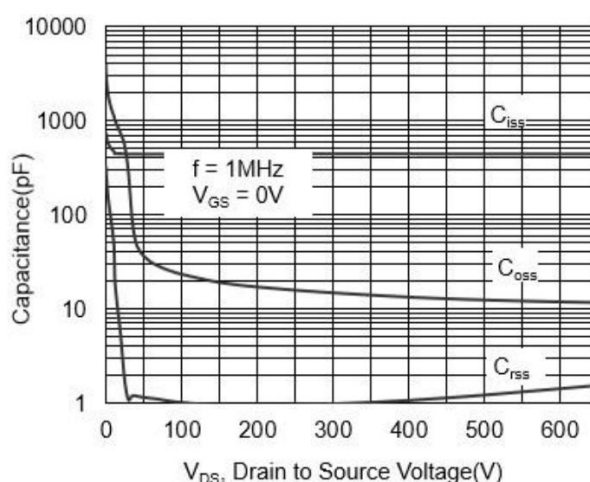


Figure4: Capacitance Characteristics

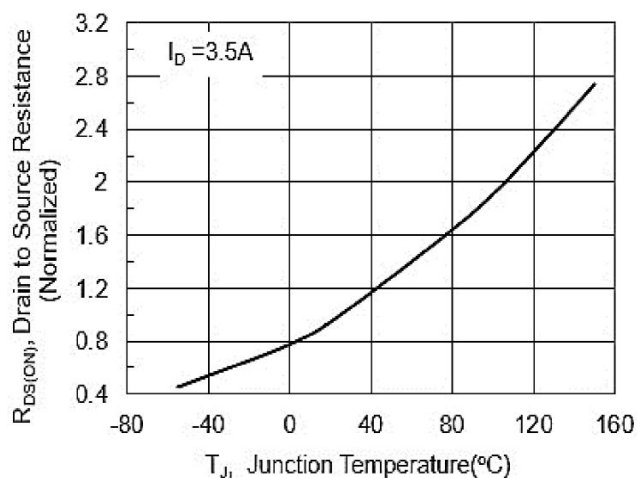


Figure5: $R_{DS(on)}$ Vs junction temperature

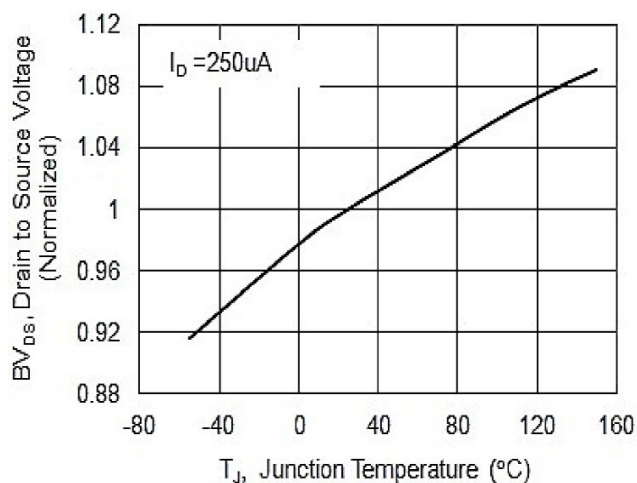


Figure6: BV_{dss} vs junction temperature

Typical Characteristics

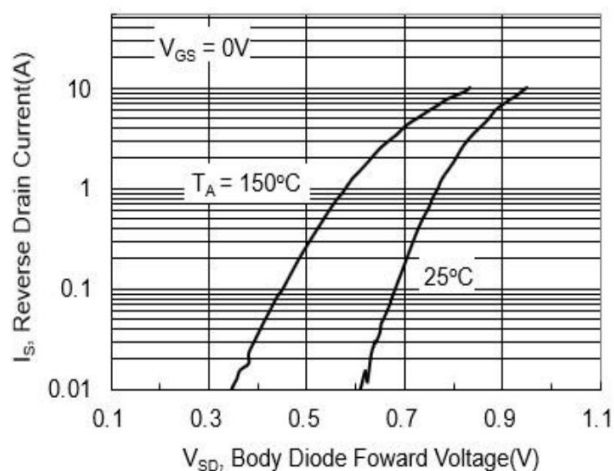


Figure7:VGS (th) vs junction temperature

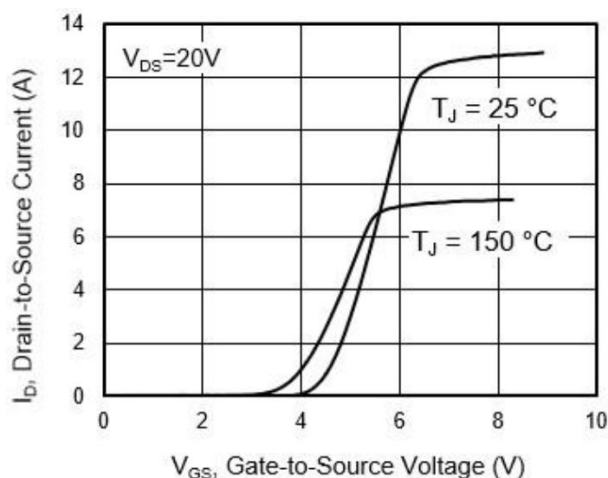


Figure8: Transfer characteristics

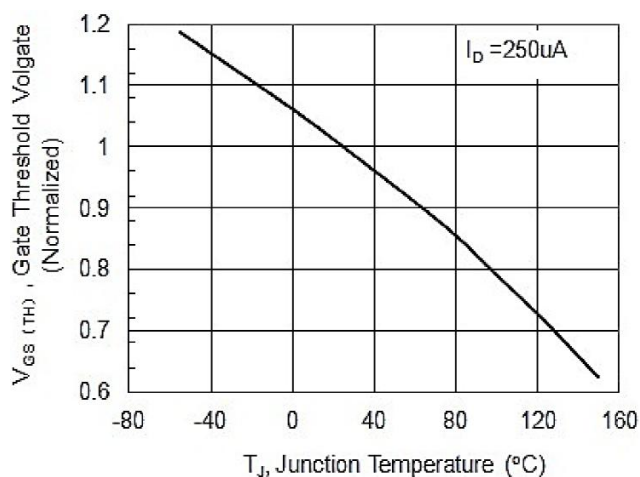


Figure9: VGS (th) vs junction temperature

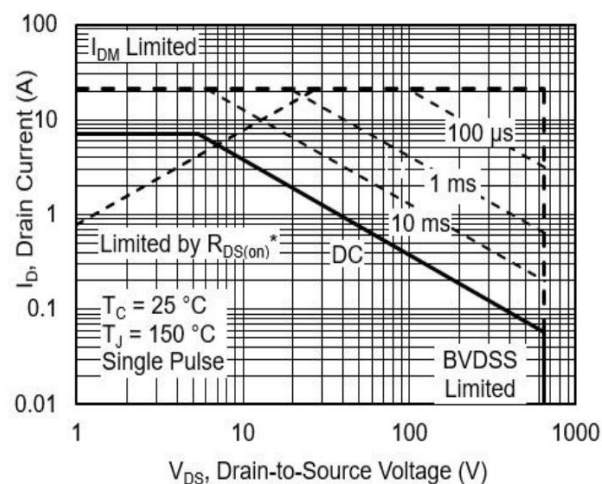


Figure10: Safe operating area

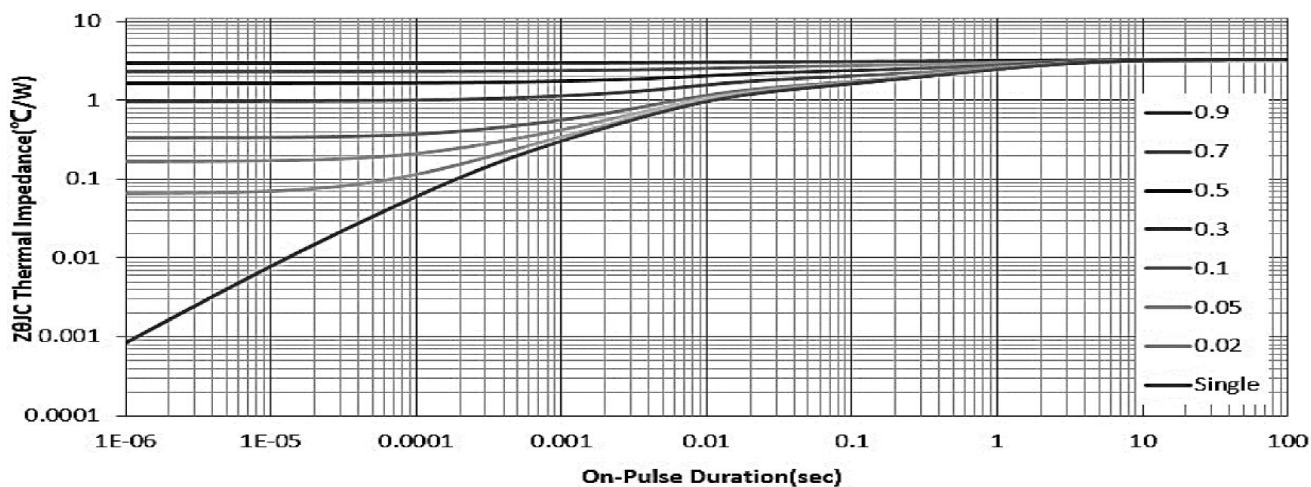
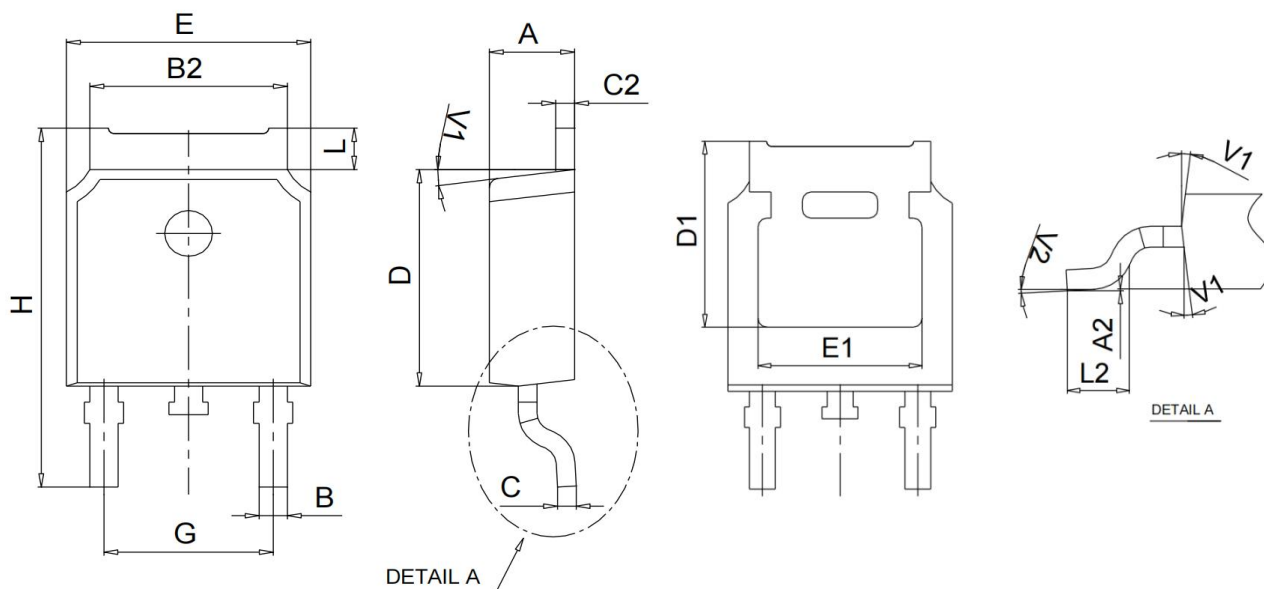


Figure11: Transient thermal impedance

TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.100	2.500	0.083	0.098
A2	0.000	0.100	0.000	0.004
B	0.660	0.860	0.026	0.034
B2	5.180	5.480	0.202	0.216
C	0.400	0.600	0.016	0.024
C2	0.440	0.580	0.017	0.023
D	5.900	6.300	0.232	0.248
D1	5.300 REF.		0.209 REF.	
E	6.400	6.800	0.252	0.268
E1	4.630	-	0.182	-
G	4.470	4.670	0.176	0.184
H	9.500	10.700	0.374	0.421
L	1.090	1.210	0.043	0.048
L2	1.350	1.650	0.053	0.065
V1	7° BSC.		7° BSC.	
V2	0°	6°	0°	6°