Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
80V	9mΩ@10V	95A

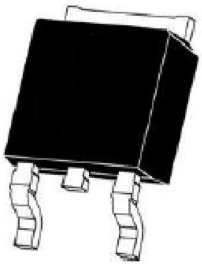
Feature

- Fast switching
- Low gate charge and $R_{ds(on)}$

Application

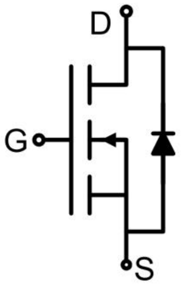
- DC-DC converter
- Power switching application
- Power Management

Package

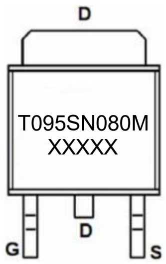


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C=25℃)	I_D	95	A
Continuous Drain Current (T_C=100℃)	I_D	64	A
Pulsed Drain Current	I_{DM}	380	A
Single Pulse Avalanche Energy$^{1)}$	E_{AS}	542	mJ
Power Dissipation (T_C=25℃)	P_D	165	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.75	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A=25℃ unless otherwise noted)

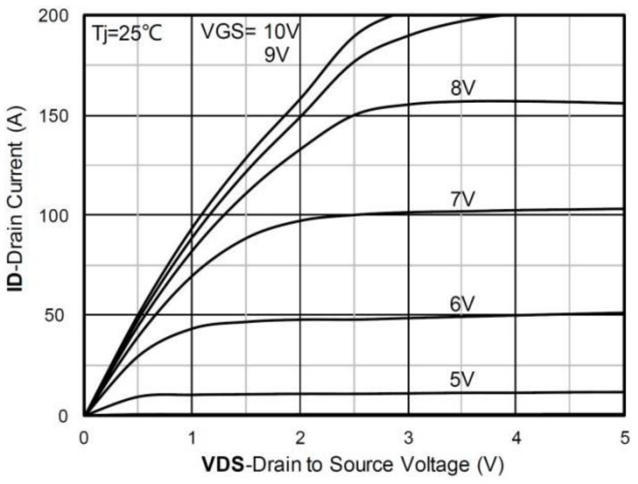
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	80			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =64V, V_{GS} =0V, T_J =25℃			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	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 =30A		6	9	mΩ
Dynamic characteristics$^{2)}$						
Input Capacitance	C_{iss}	V_{DS} =40V, V_{GS} =0V, f =1MHz		3610		pF
Output Capacitance	C_{oss}			285		
Reverse Transfer Capacitance	C_{rss}			210		
Total Gate Charge	Q_g	V_{DS} =40V, V_{GS} =10V, I_D =30A		108		nC
Gate-Source Charge	Q_{gs}			32		
Gate-Drain Charge	Q_{gd}			24		
Turn-on delay time	$t_{d(on)}$	V_{DS} =40V, V_{GS} =10V, I_D =30A R_G =6Ω		18		nS
Turn-on rise time	t_r			62		
Turn-off delay time	$t_{d(off)}$			52		
Turn-off fall time	t_f			15		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				95	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A			1.2	V
Reverse recover time	T_{rr}	I_S =20A, di/dt =-100A/us T_J =25℃		37		nS
Reverse recovery charge	Q_{rr}			58		nC

Notes:

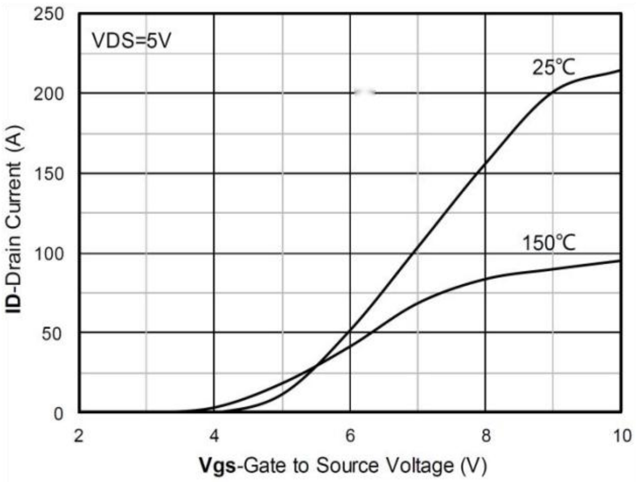
1) The EAS test condition is V_{DD} = 40V, V_{GS}=10V, L=0.5mH,R_G = 25Ω.

2) Guaranteed by design, not subject to production testing.

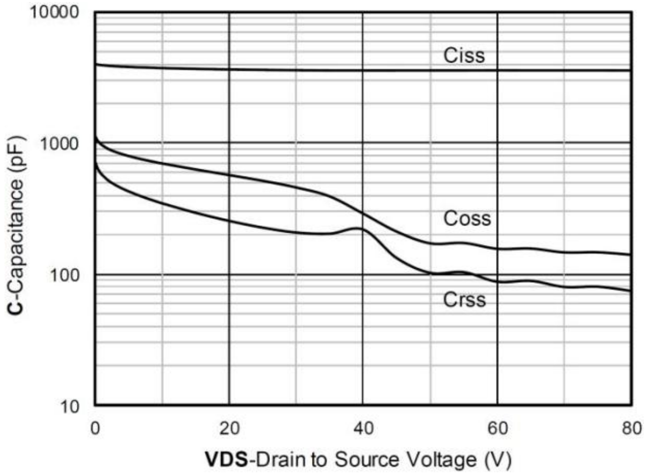
Typical Characteristics



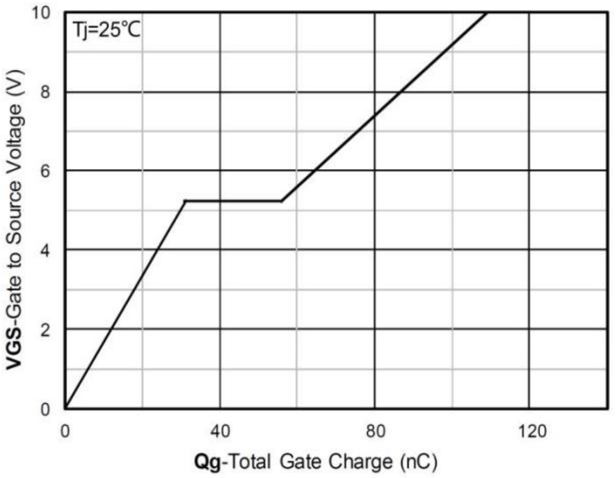
Output Characteristics



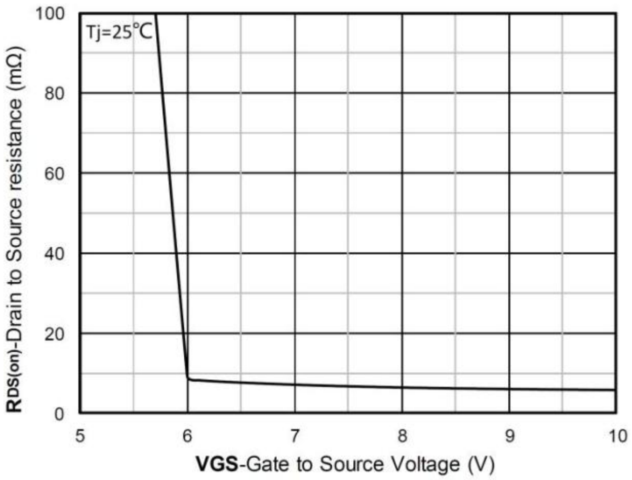
Transfer Characteristics



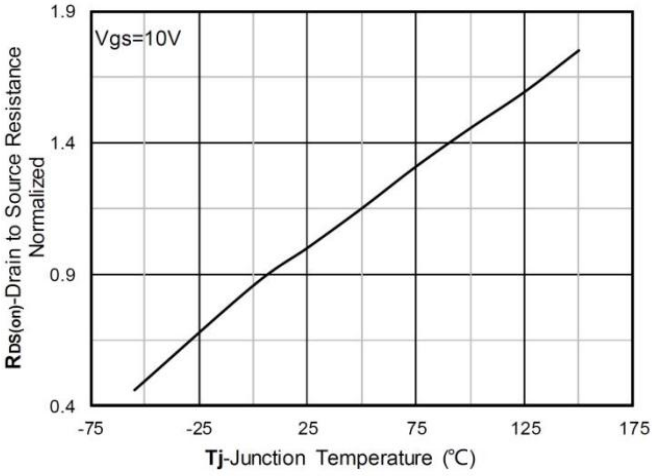
Capacitance Characteristics



Gate Charge

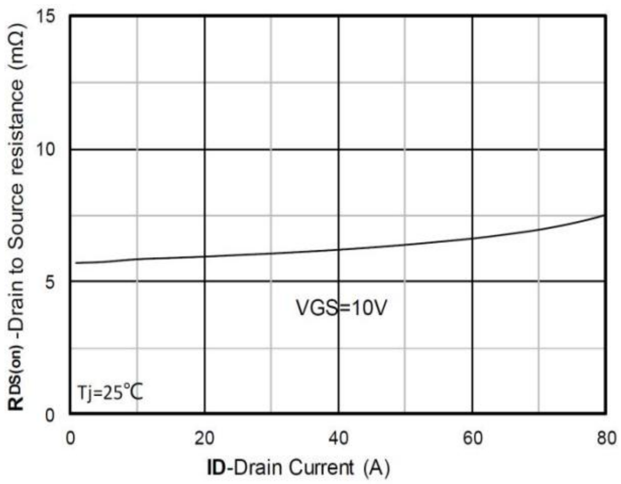


On-Resistance vs Gate to Source Voltage

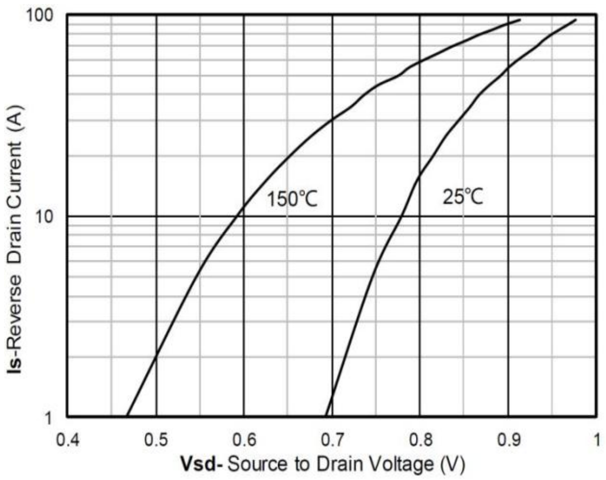


Normalized On-Resistance

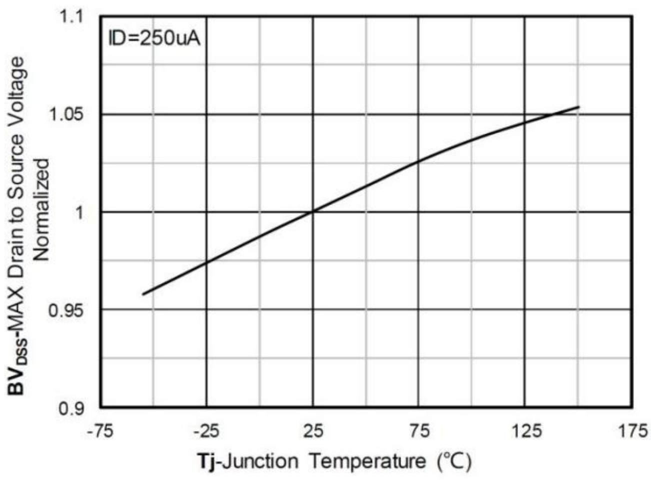
Typical Characteristics



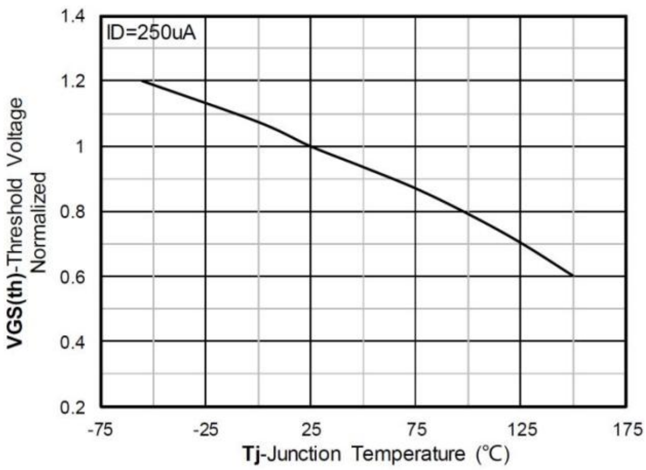
RDS(on) VS Drain Current



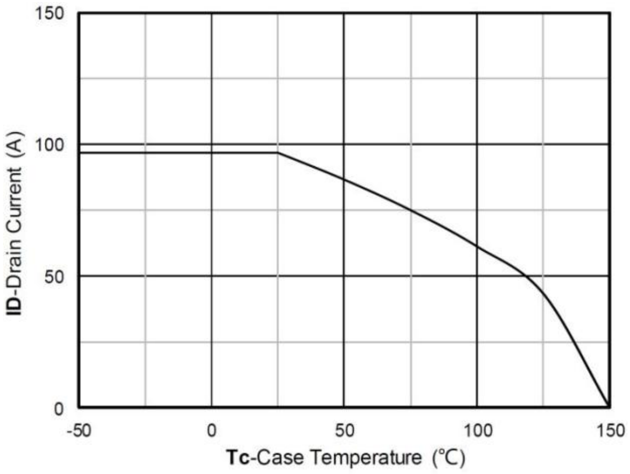
Forward characteristics of reverse diode



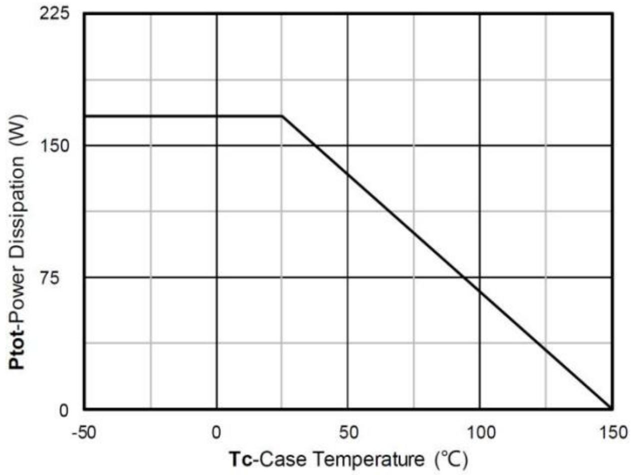
Normalized breakdown voltage



Normalized Threshold voltage

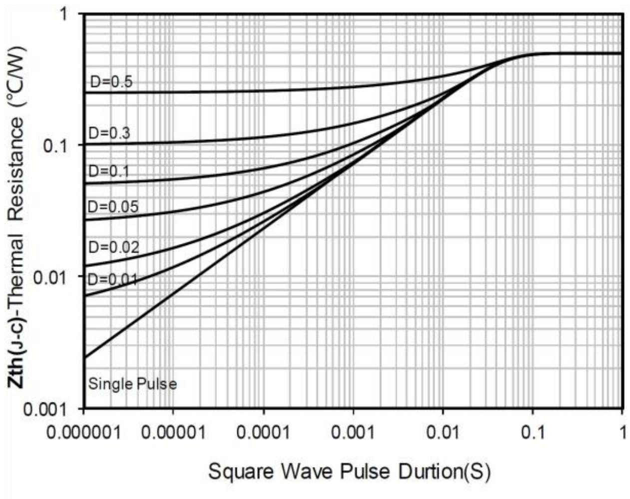


Current dissipation

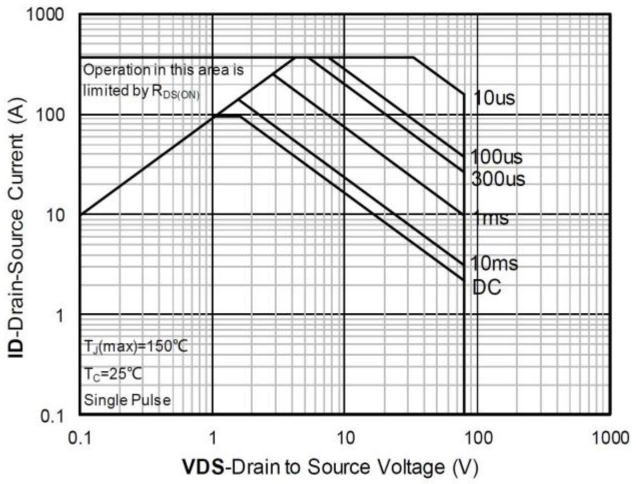


Power dissipation

Typical Characteristics

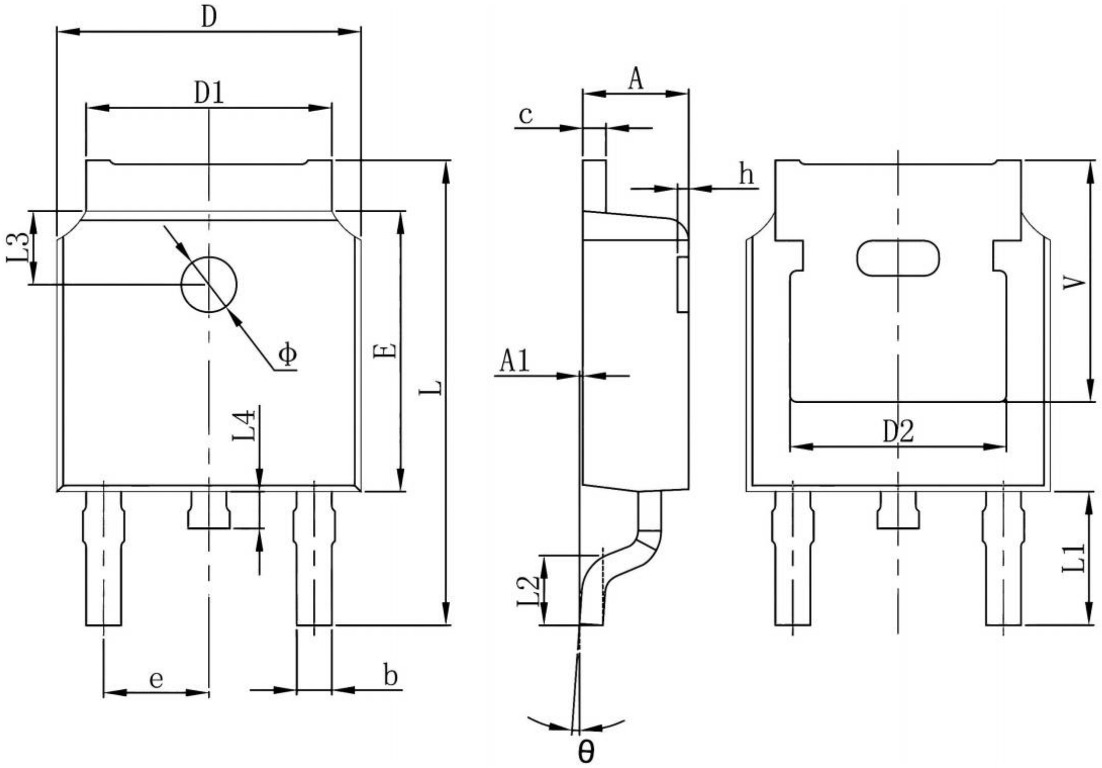


Maximum Transient Thermal Impedance



Safe Operation Area

TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	