

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
100V	85mΩ@10V	15A
	110mΩ@4.5V	

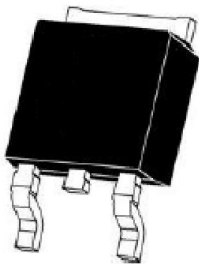
### Feature

- Low gate charge
- Fully characterized avalanche voltage and current
- Advanced high cell density trench technology
- Excellent package for good heat dissipation

### Application

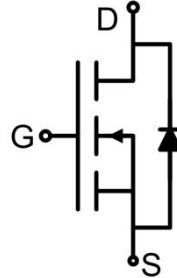
- Power Management Switches
- DC/DC Converters

### Package

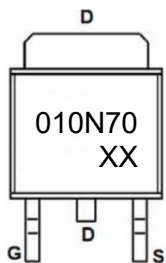


TO-252AB

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	15	A
Continuous Drain Current(T <sub>C</sub> =100°C)	I <sub>D</sub> (100°C)	10	A
Pulsed Drain Current	I <sub>DM</sub>	58	A
Power Dissipation	P <sub>D</sub>	41.7	W
Thermal Resistance,Junction-to-Ambient	R <sub>θJA</sub>	50	°C/W
Thermal Resistance,Junction-to-Case	R <sub>θJC</sub>	3	°C/W
Single pulse avalanche energy	E <sub>AS</sub>	3.2	mJ
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

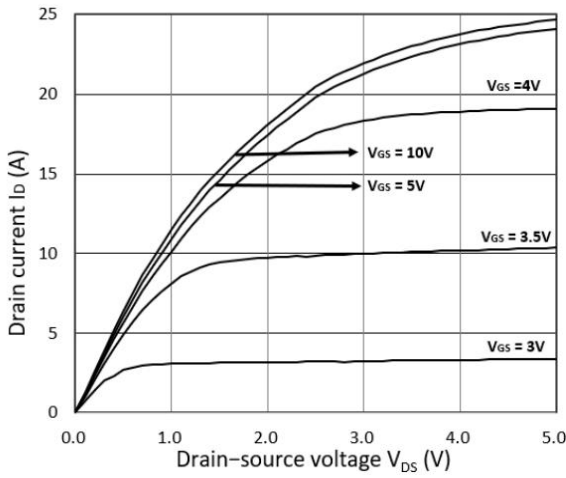
### Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	100			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.2		2.5	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5A		70	85	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		85	110	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f =1MHz		1100		pF
Output Capacitance	C <sub>oss</sub>			55		
Reverse Transfer Capacitance	C <sub>rss</sub>			40		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =5A		12		nC
Gate-Source Charge	Q <sub>gs</sub>			2.9		
Gate-Drain Charge	Q <sub>gd</sub>			1.8		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =5A R <sub>GEN</sub> =3Ω		3.9		nS
Turn-on rise time	t <sub>r</sub>			26		
Turn-off delay time	t <sub>d(off)</sub>			16.2		
Turn-off fall time	t <sub>f</sub>			8.9		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	I <sub>S</sub>				15	A
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A			1.2	V

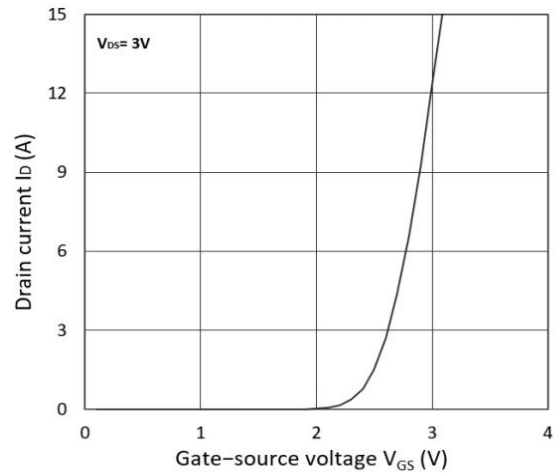
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.
- 3) EAS condition: V<sub>DD</sub>=25V, V<sub>GS</sub>=10V, L=0.1mH, I<sub>AS</sub>=8A

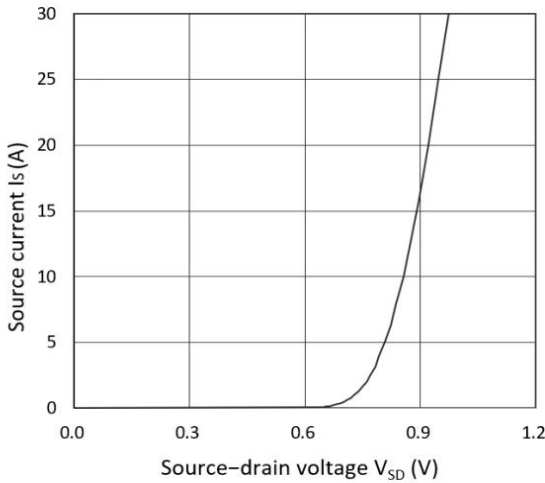
## Typical Characteristics



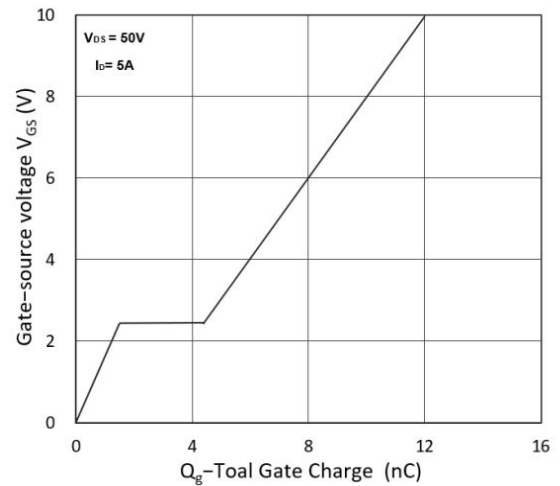
Output Characteristics



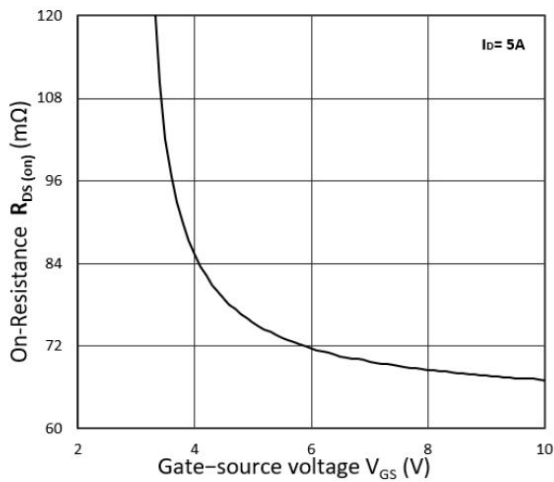
Transfer Characteristics



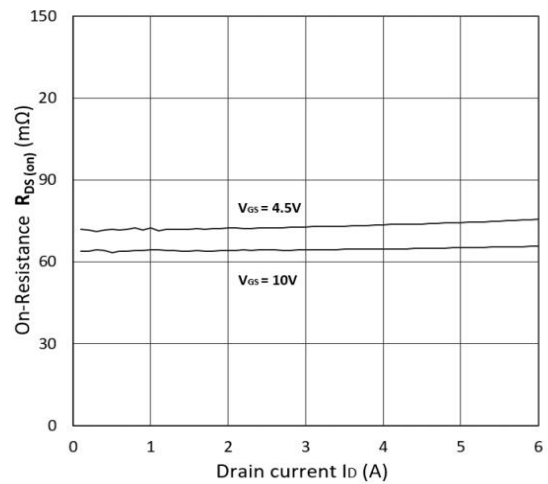
Forward Characteristics of Reverse



Gate Charge Characteristics

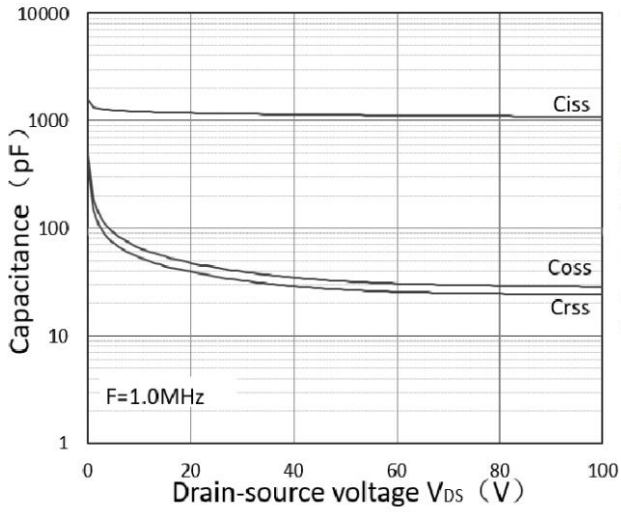


$R_{DS(on)}$  vs.  $V_{GS}$

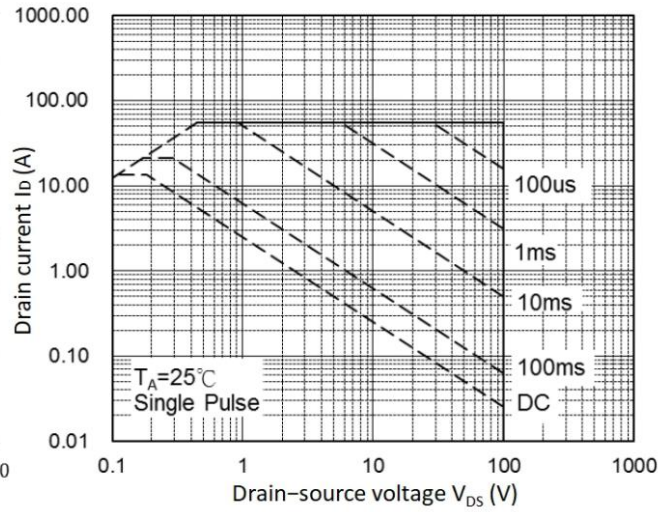


$R_{DS(on)}$  vs.  $I_D$

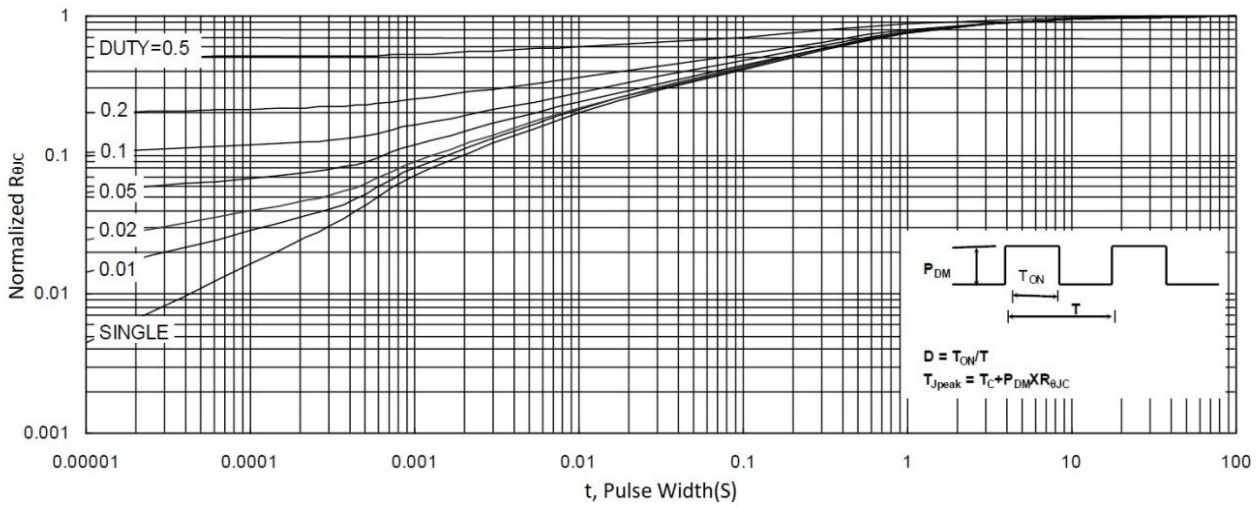
## Typical Characteristics



Capacitance Characteristics

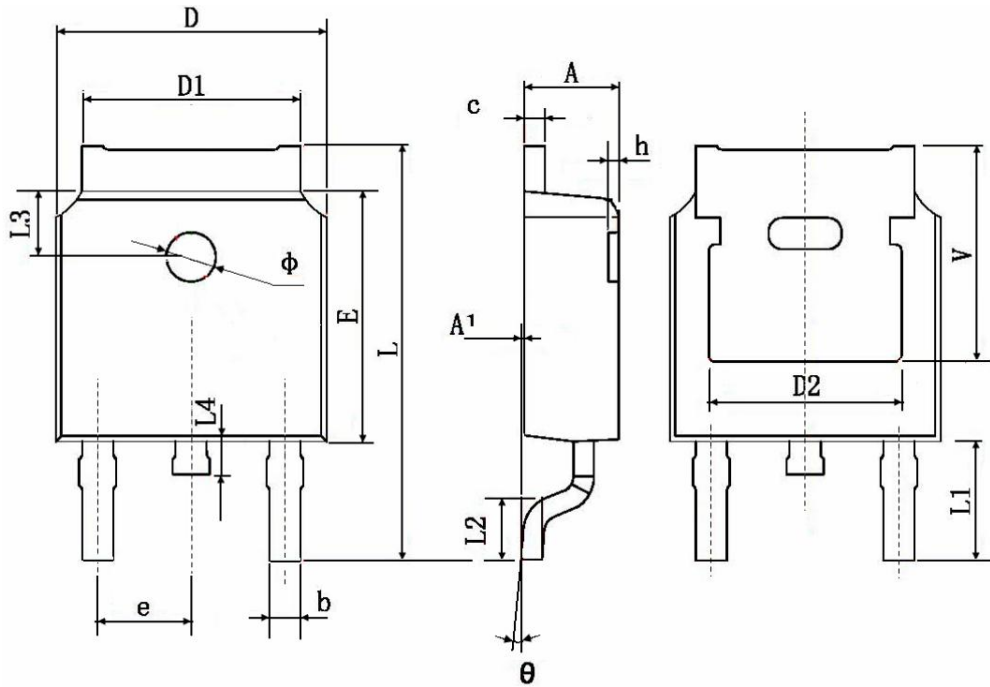


Safe Operating Area



Normalized Maximum Transient Thermal Impedance

### 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	0.200	0.000	0.008
b	0.660	0.860	0.026	0.043
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.150	5.450	0.203	0.215
D2	4.600	4.950	0.181	0.195
E	6.000	6.200	0.236	0.244
e	2.286BSC		0.090BSC	
L	9.800	10.400	0.386	0.409
L1	2.900REF		0.114REF	
L2	1.250	1.750	0.049	0.069
L3	1.400	1.900	0.055	0.075
L4	0.600	1.000	0.024	0.039
φ	1.100	1.300	0.043	0.051
h	0.000	0.300	0.000	0.012
v	5.350 REF		0.211 REF	
θ	0°	10°	0°	10°