

### Product Summary

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

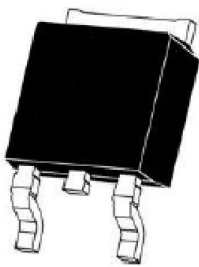
### Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation

### Application

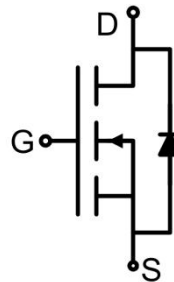
- Power switching application
- Hard switched and high frequency circuits

### Package

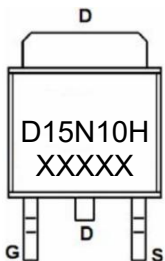


TO-252AB

### Circuit diagram



### Marking



### Absolute maximum ratings (Tc=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)	10.6	A
Pulsed Drain Current	I <sub>DM</sub>	60	A
Power Dissipation	P <sub>D</sub>	50	W
Thermal Resistance,Junction-to-Case <sup>2)</sup>	R <sub>θJC</sub>	3	°C/W
Single pulse avalanche energy	E <sub>AS</sub>	200	mJ
Junction Temperature	T <sub>J</sub>	175	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +175	°C

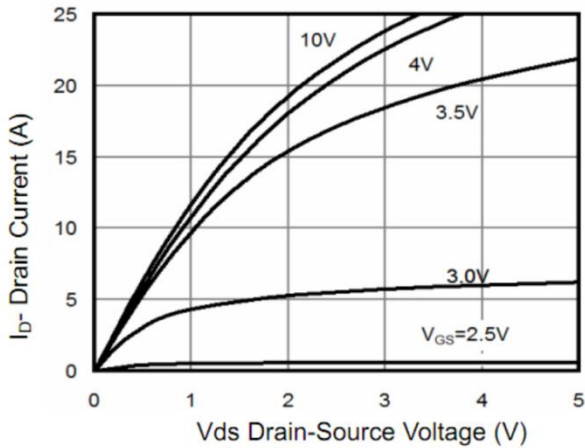
### Electrical characteristics (Tc=25°C unless otherwise noted)<sup>1)</sup>

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	1.0	1.6	2.5	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =10A		80	100	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A		85	110	
Forward Transconductance	g <sub>FS</sub>	V <sub>GS</sub> =5V, I <sub>D</sub> =10A		10		S
<b>Dynamic characteristics<sup>3)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, f =1MHz		830		pF
Output Capacitance	C <sub>oss</sub>			44.2		
Reverse Transfer Capacitance	C <sub>rss</sub>			30.1		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =10A		22.3		nC
Gate-Source Charge	Q <sub>gs</sub>			2.87		
Gate-Drain Charge	Q <sub>gd</sub>			6.14		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, V <sub>GS</sub> =10V, R <sub>L</sub> =6.4Ω, R <sub>GEN</sub> =3Ω		15		nS
Turn-on rise time	t <sub>r</sub>			5		
Turn-off delay time	t <sub>d(off)</sub>			25		
Turn-off fall time	t <sub>f</sub>			7		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>2)</sup>	I <sub>S</sub>				15	A
Diode Forward voltage <sup>1)</sup>	V <sub>DS</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =15A			1.2	V

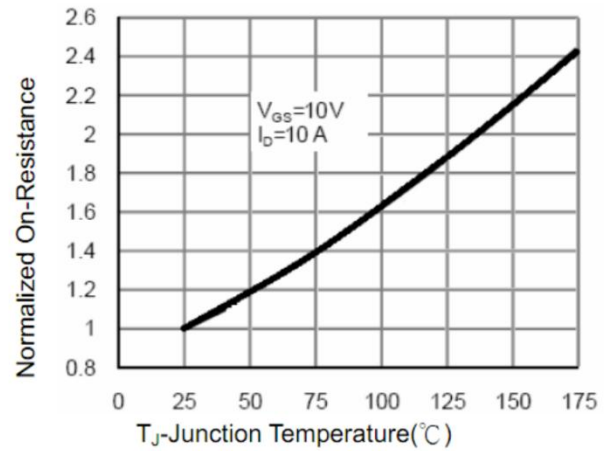
Notes:

- 1) Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- 2) Surface Mounted on FR4 Board, t ≤ 10 sec.
- 3) Guaranteed by design, not subject to production.

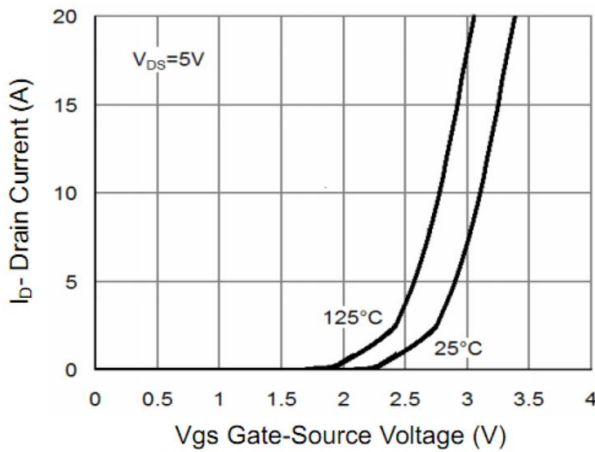
## Typical Characteristics



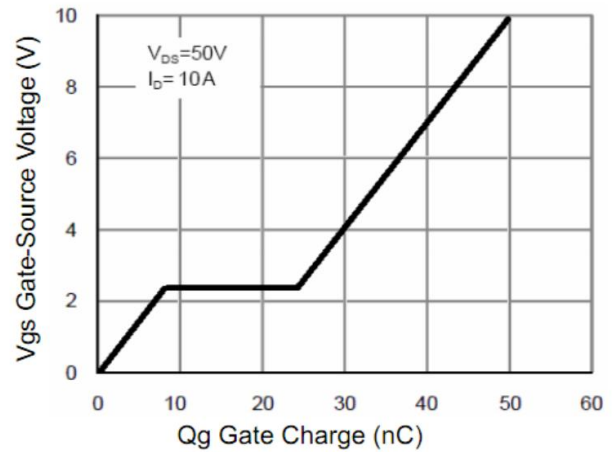
**Figure 1 Output Characteristics**



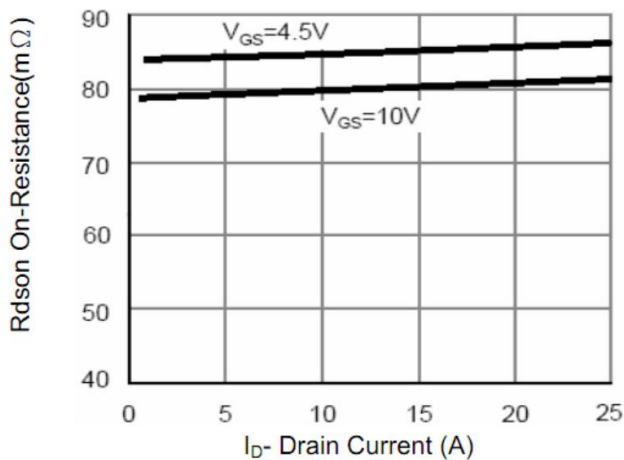
**Figure 2 Rdson-Junction Temperature**



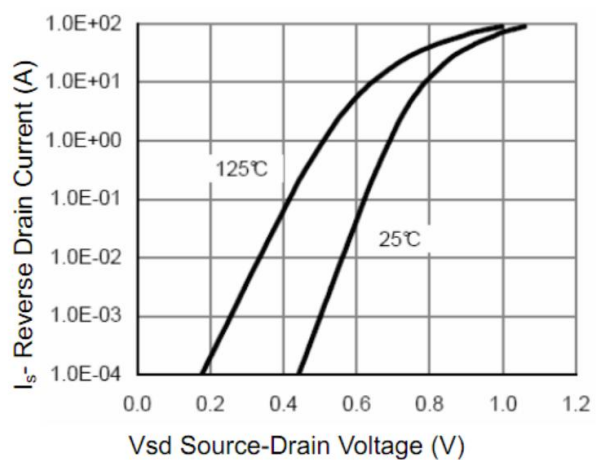
**Figure 3 Transfer Characteristics**



**Figure 4 Gate Charge**

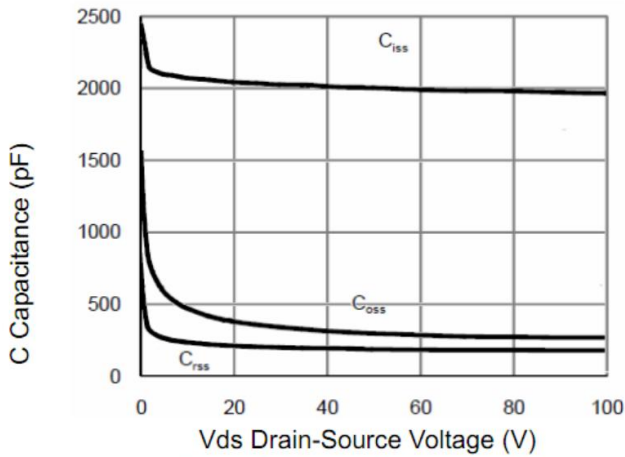


**Figure 5 Rdson- Drain Current**

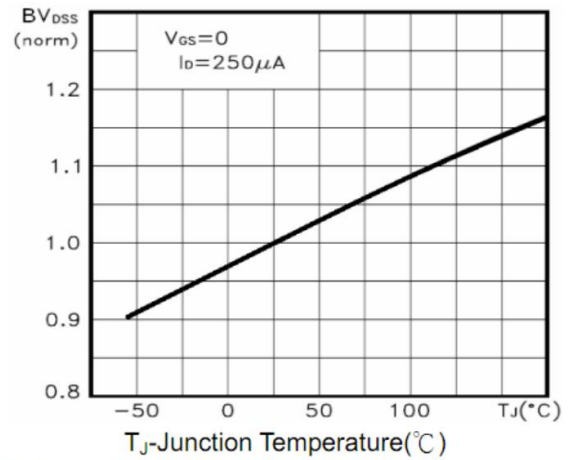


**Figure 6 Source- Drain Diode Forward**

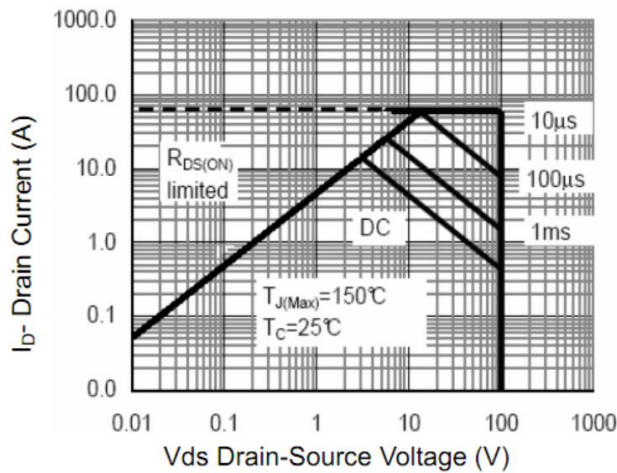
## Typical Characteristics



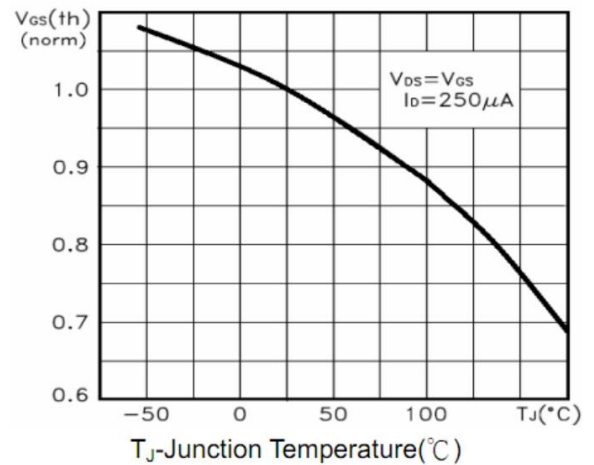
**Figure 7 Capacitance vs Vds**



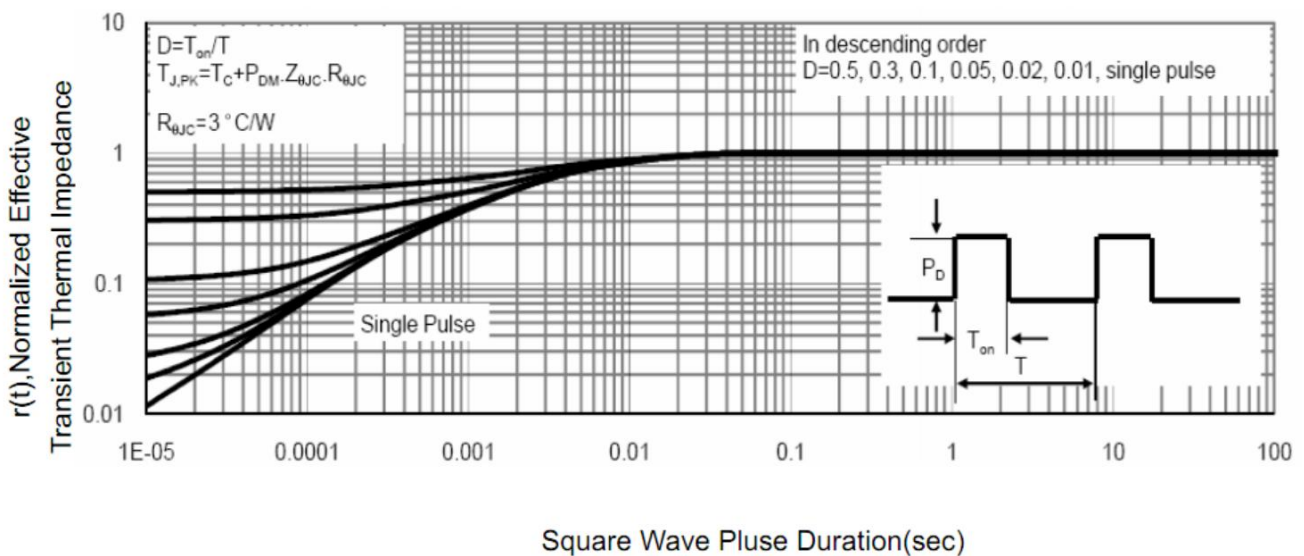
**Figure 8  $BV_{DSS}$  vs Junction Temperature**



**Figure 9 Safe Operation Area**

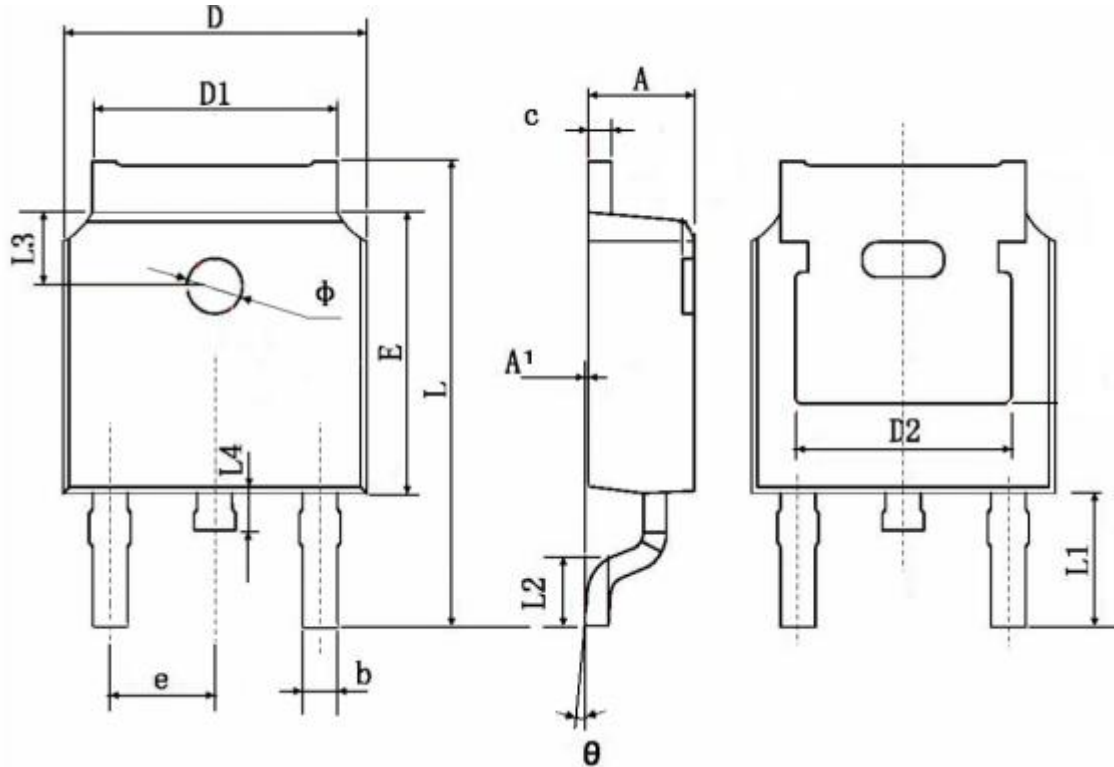


**Figure 10  $V_{GS(th)}$  vs Junction Temperature**



**Figure 11 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	0.086	0.094
A1	0.000	0.130	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	5.500	0.201	0.217
D2	4.830 REF		0.190 REF	
E	6.000	6.200	0.236	0.244
e	2.190	2.390	0.086	0.094
L	9.800	10.500	0.386	0.413
L1	2.900 BSC		0.114 BSC	
L2	1.400	1.800	0.055	0.070
L3	1.600 REF		0.063 REF	
L4	0.600	1.000	0.023	0.039
$\phi$	1.100	1.300	0.043	0.051
$\theta$	0°	8°	0°	8°