

Product Summary

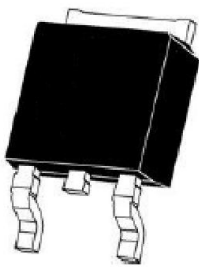
$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	100mΩ@10V	15A
	110mΩ@4.5V	

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
- Suffix "-Q1" for AEC-Q101

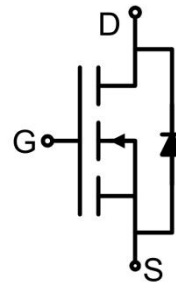
Application

- Power switching application
- Hard switched and high frequency circuits

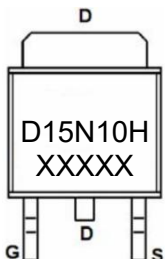


TO-252AB

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	15	A
Continuous Drain Current(T _C =100 °C)	I _D (100 °C)	10.6	A
Pulsed Drain Current	I _{DM}	60	A
Power Dissipation	P _D	50	W
Thermal Resistance,Junction-to-Case ²⁾	R _{θJC}	3	°C/W
Single pulse avalanche energy	E _{AS}	200	mJ
Junction Temperature	T _J	175	°C
Storage Temperature	T _{STG}	-55 ~ +175	°C

Electrical characteristics (Tc=25°C unless otherwise noted)¹⁾

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =10A		80	100	mΩ
		V _{GS} =4.5V, I _D =10A		85	110	
Forward Transconductance	g _{FS}	V _{GS} =5V, I _D =10A		10		S
Dynamic characteristics³⁾						
Input Capacitance	C _{iss}	V _{DS} =50V, V _{GS} =0V, f =1MHz		830		pF
Output Capacitance	C _{oss}			44.2		
Reverse Transfer Capacitance	C _{rss}			30.1		
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V, I _D =10A		22.3		nC
Gate-Source Charge	Q _{gs}			2.87		
Gate-Drain Charge	Q _{gd}			6.14		
Turn-on delay time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V, R _L =6.4Ω, R _{GEN} =3Ω		15		nS
Turn-on rise time	t _r			5		
Turn-off delay time	t _{d(off)}			25		
Turn-off fall time	t _f			7		
Source-Drain Diode characteristics						
Diode Forward Current ²⁾	I _S				15	A
Diode Forward voltage ¹⁾	V _{DS}	V _{GS} =0V, I _S =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

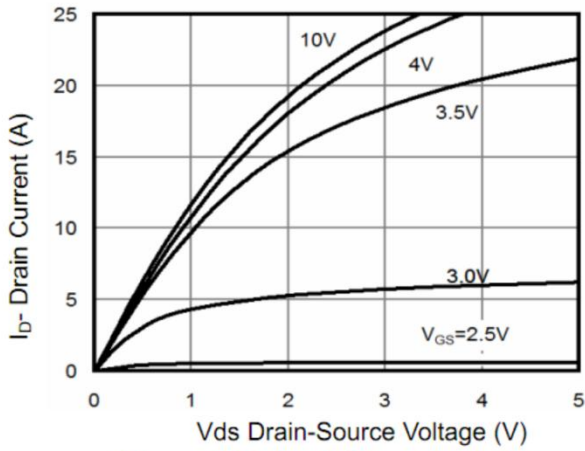


Figure 1 Output Characteristics

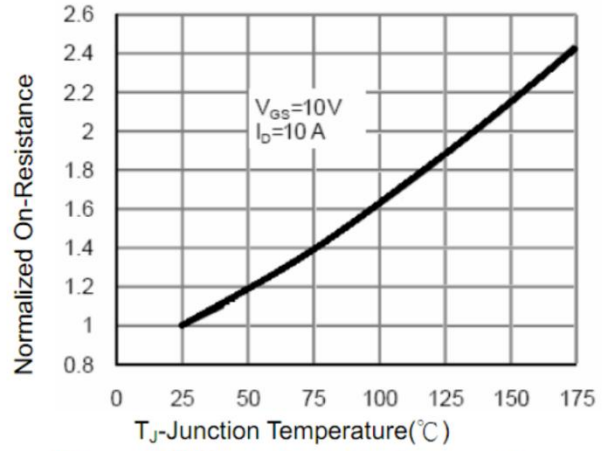


Figure 2 Rdson-Junction Temperature

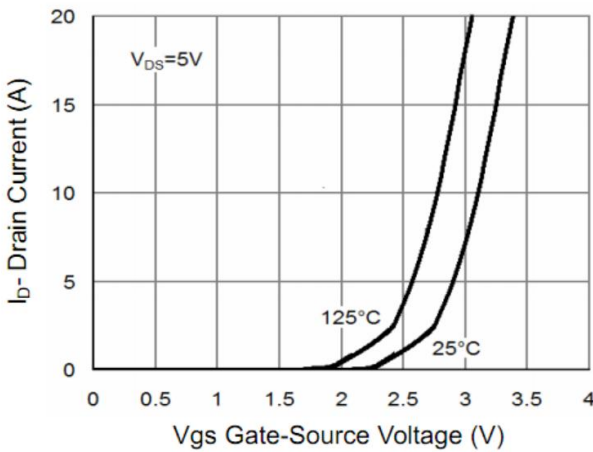


Figure 3 Transfer Characteristics

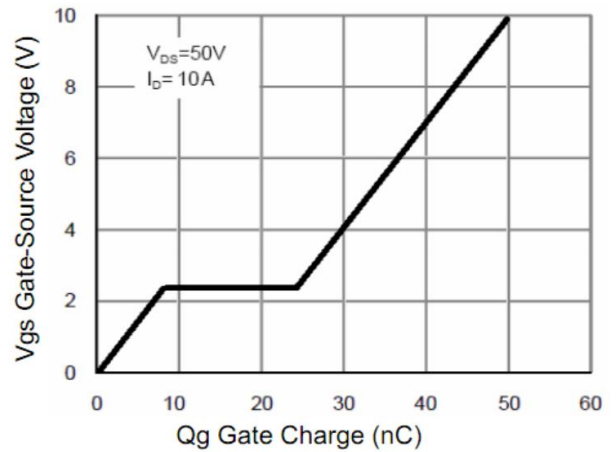


Figure 4 Gate Charge

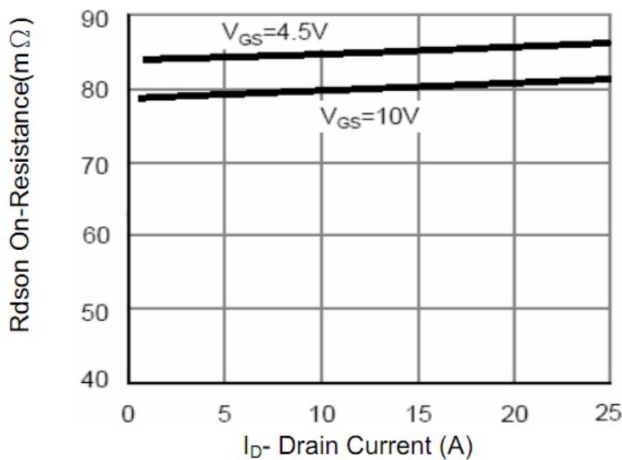


Figure 5 Rdson- Drain Current

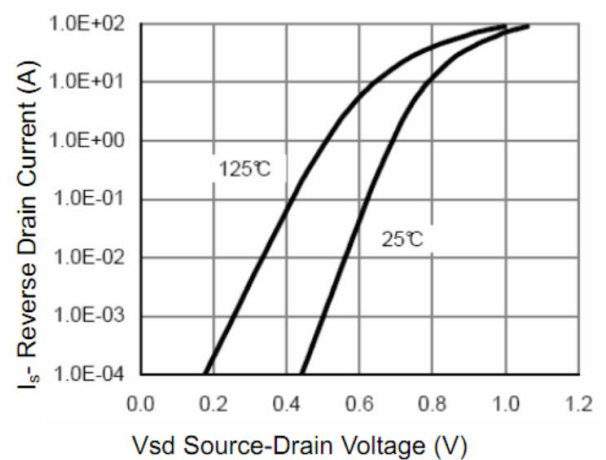


Figure 6 Source- Drain Diode Forward

Typical Characteristics

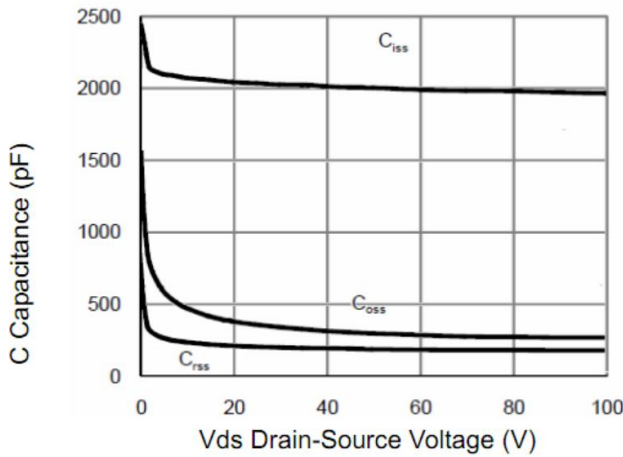


Figure 7 Capacitance vs Vds

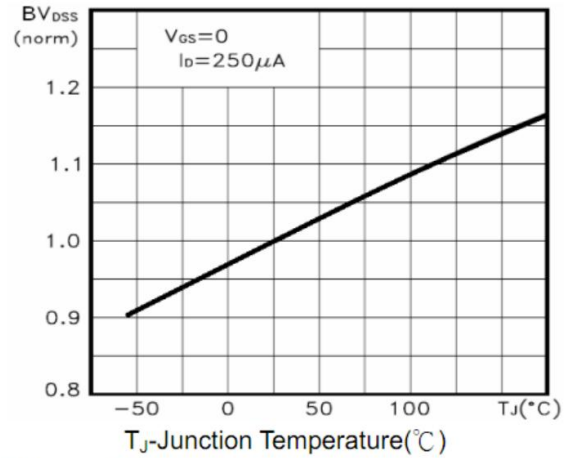


Figure 8 BV_{DSS} vs Junction Temperature

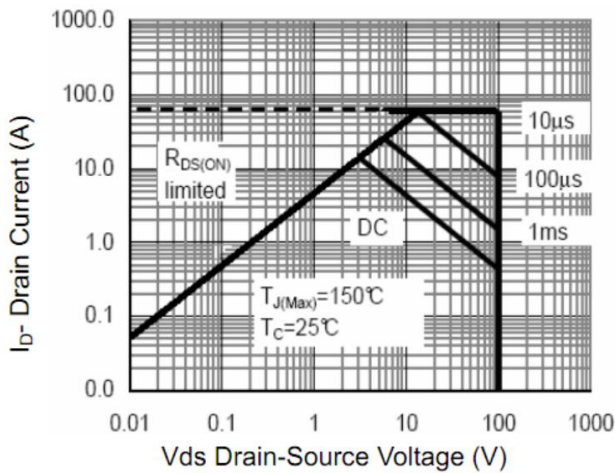


Figure 9 Safe Operation Area

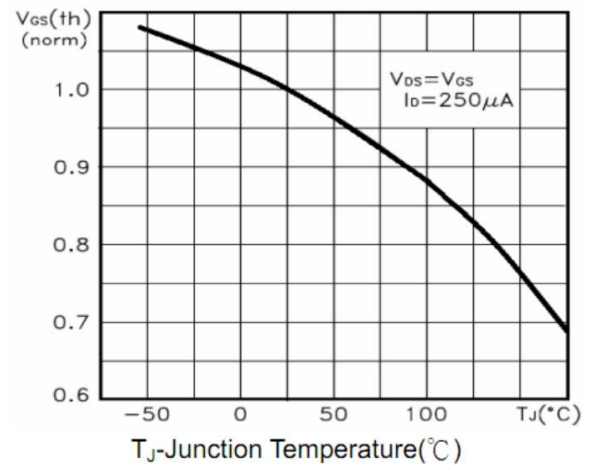


Figure 10 $V_{GS(th)}$ vs Junction Temperature

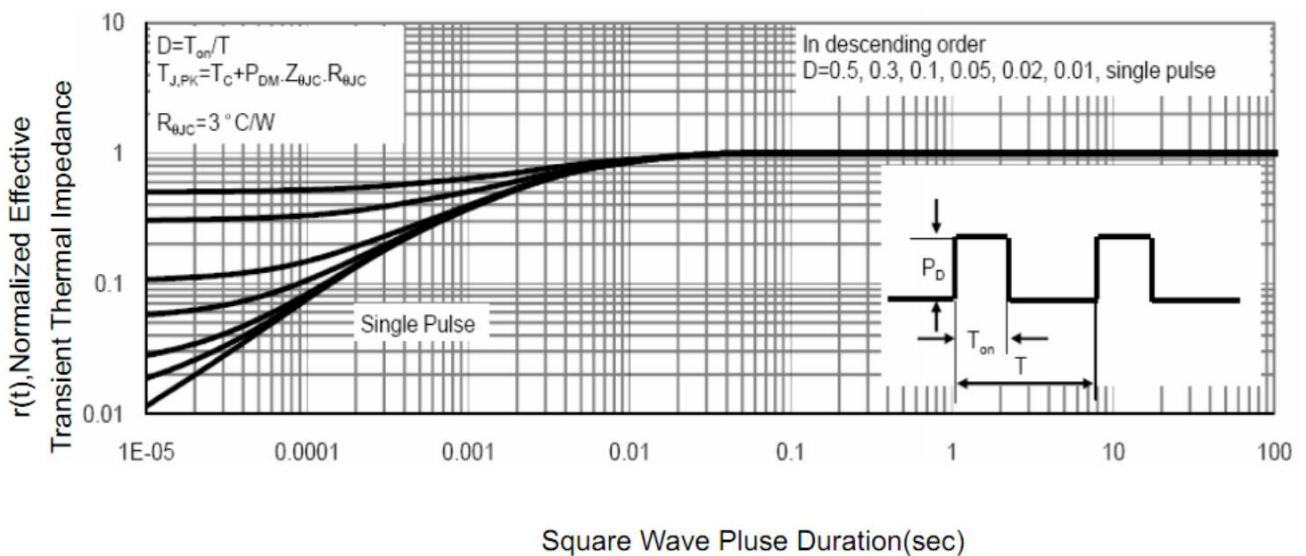
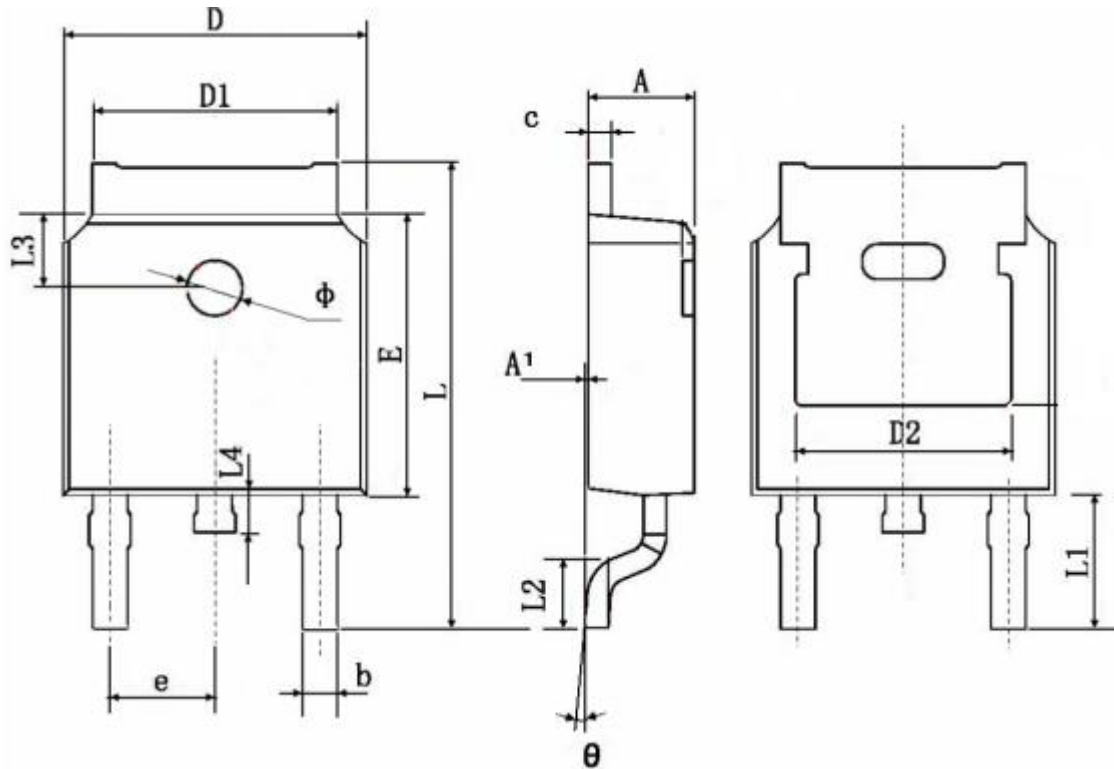


Figure 11 Normalized Maximum Transient Thermal Impedance

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
φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°