ADR360N65AS-Q1

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	360mΩ@10V	11.5A

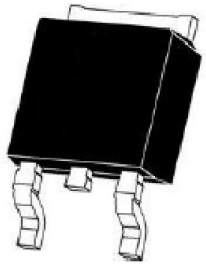
Feature

- New technology for high voltage device
- Low on-resistance and low conduction losses
- Ultra Low Gate Charge cause lower driving requirements
- Suffix "-Q1" for AEC-Q101

Application

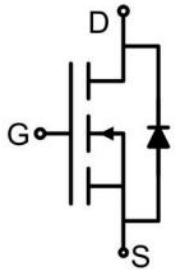
- Power factor correction（PFC）
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply（UPS）

Package



TO-252AB

Circuit diagram



Marking

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage,AC (f>1 Hz)	V_{GS}	±30	V
Continuous Drain Current	I_D	11.5	A
Continuous Drain Current(T_C =100℃)	I_D(100℃)	7	A
Pulsed Drain Current[1)]	I_{DM}	46	A
Power Dissipation	P_D	101	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.24	℃/W
Single pulse avalanche energy[2)]	E_{AS}	144	mJ
Avalanche current[1)]	I_{AR}	6	A
Repetitive avalanche energy, t_{AR} limited by T_{jmax}[1)]	E_{AR}	0.5	mJ
Junction Temperature	T_J	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	650			V
Zero gate voltage drain current(T_C =25℃)	I_{DSS}	V_{DS} =650V,V_{GS} = 0V			1	μA
Zero gate voltage drain current(T_C =125℃)	I_{DSS}	V_{DS} =650V,V_{GS} = 0V			100	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	3.0	3.5	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =7A		290	360	mΩ
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V, f =1MHz		870		pF
Output Capacitance	C_{oss}			54		
Reverse Transfer Capacitance	C_{rss}			1.8		
Total Gate Charge	Q_g	V_{DS} =480V,V_{GS} =10V, I_D=11.5A		19		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			6.5		
Turn-on delay time	$t_{d(on)}$	V_{DD}=380V,V_{GS}=10V, I_D =5.8A,R_G=3Ω		11		nS
Turn-on rise time	t_r			8		
Turn-off delay time	$t_{d(off)}$			58		
Turn-off fall time	t_f			9		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	V_{GS}=0V, I_S=11.5A, T_j=25℃			1.2	V
Diode Forward Current	I_{SD}	T_C =25℃			11.5	A
Pulsed-Source-drain current	I_{SDM}				46	A
Reverse Recovery Time	t_{rr}	T_j= 25°C, I_F = 5.8A di/dt = 100A/μs		220		nS
Reverse Recovery Charge	Q_{rr}			2.2		uC
Peak reverse recovery current	I_{rrm}			19		A

Notes:

1) Repetitive Rating: Pulse width limited by maximum junction temperature.

2) Tj=25℃,VDD=50V,VG=10V, RG=25Ω.

3) Guaranteed by design, not subject to production.

Typical Characteristics

Figure1. Safe operating area

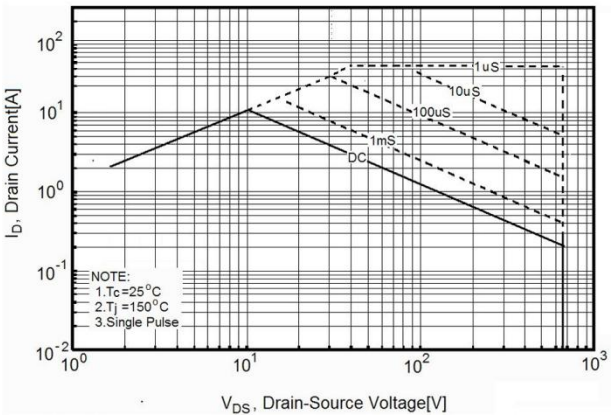


Figure2. Transient Thermal Impedance

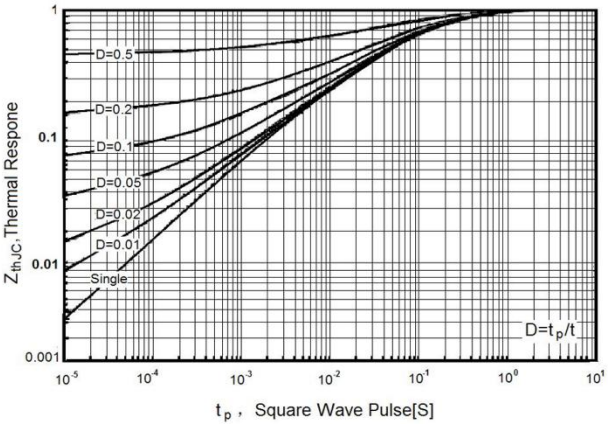


Figure3. Source-Drain Diode Forward Voltage

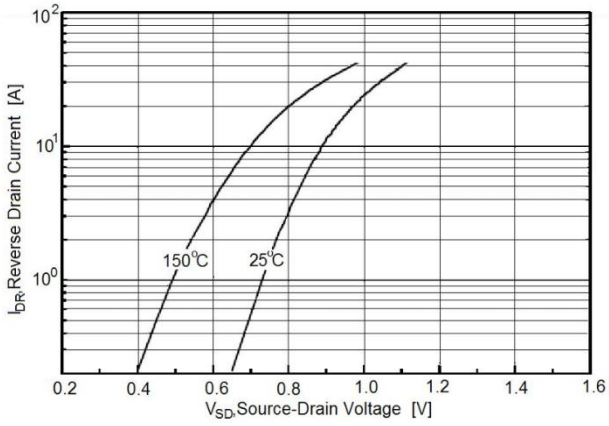


Figure4. Output characteristics

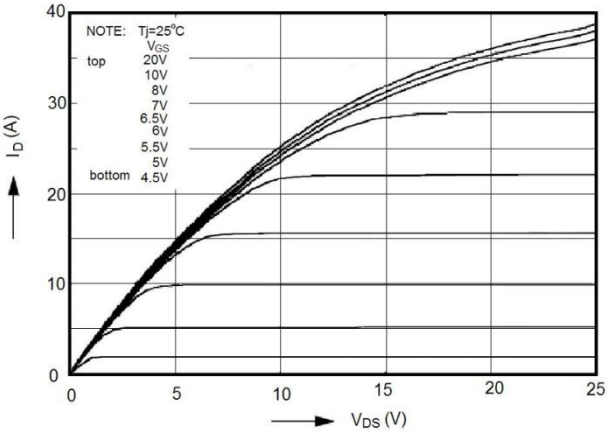


Figure5. Transfer characteristics

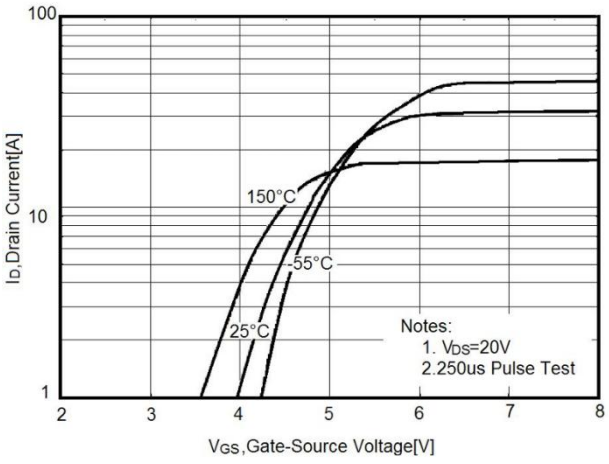
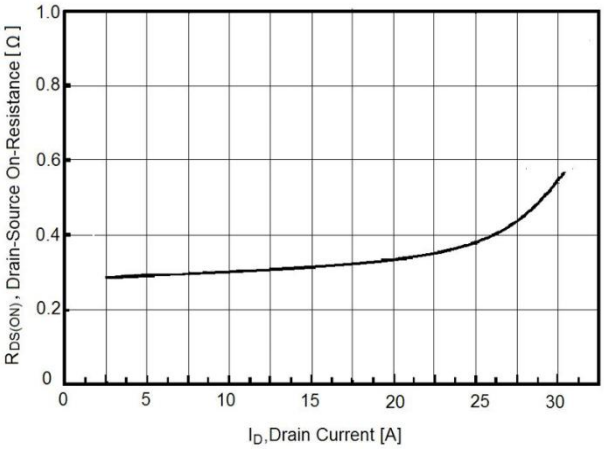


Figure6. Static drain-source on resistance



Typical Characteristics

Figure7. $R_{DS(ON)}$ vs Junction Temperature

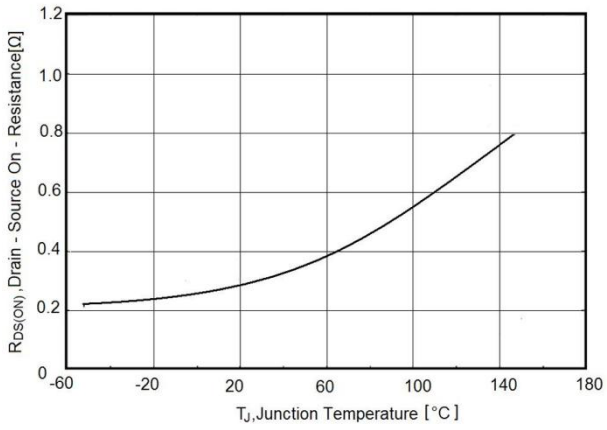


Figure8. BV_{DSS} vs Junction Temperature

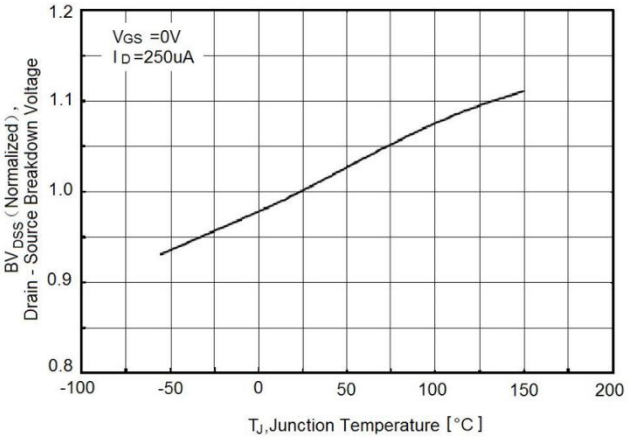


Figure9. Maximum I_D vs Junction Temperature

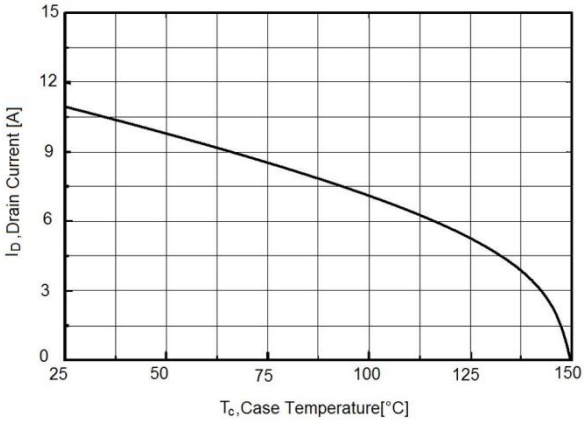


Figure10. Gate charge waveforms

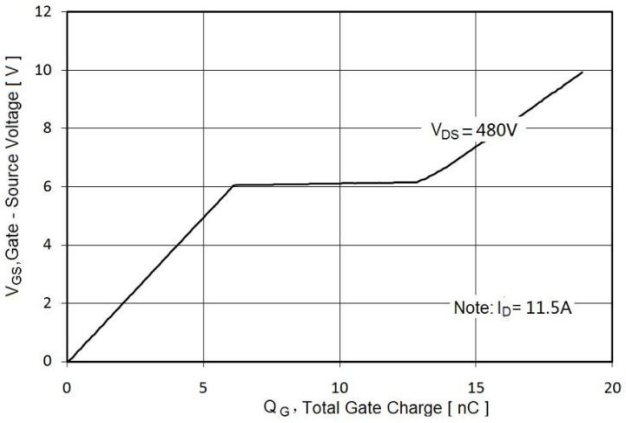
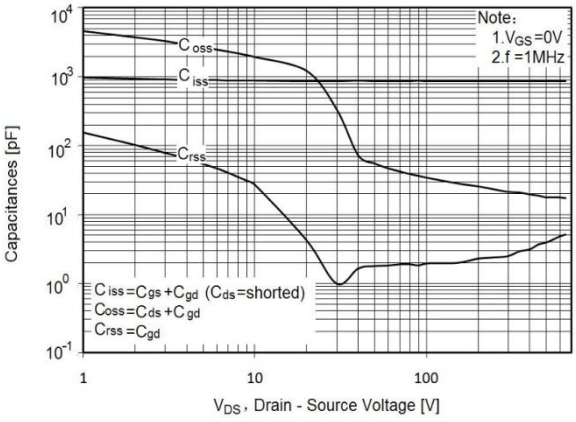
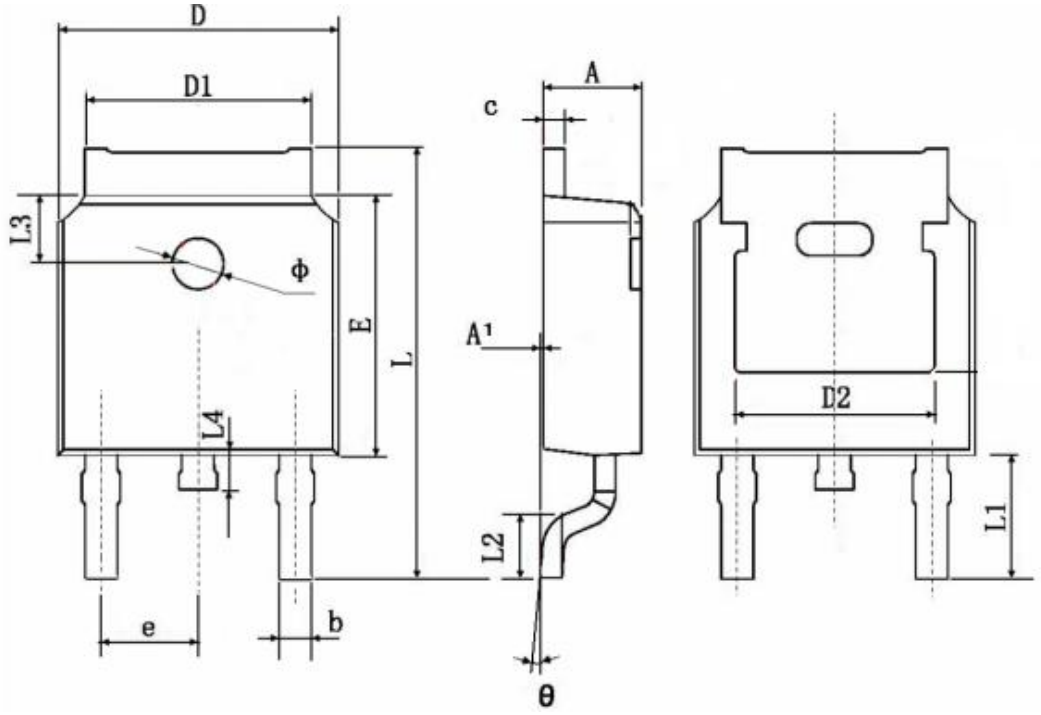


Figure11. Capacitance



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	0.130	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.600	0.018	0.024
D	6.500	6.700	0.256	0.264
D1	5.100	5.500	0.201	0.217
D2	4.700	-	0.185	-
E	6.000	6.200	0.236	0.244
e	2.186	2.390	0.086	0.094
L	9.800	10.500	0.386	0.413
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.800	0.055	0.070
L3	1.800 REF.		0.071 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.400	0.043	0.055
θ	0°	8°	0°	8°