APR026N10S-Q1

N-Channel Super Junction Power MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
100V	2.6mΩ@10V	230A

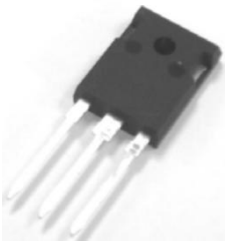
Feature

- Very low on-resistance Rdson
- Excellent gate Charge x Rdson product(FOM)
- Suffix "-Q1" for AEC-Q101

Application

- DC/DC converter
- Ideal for high-frequency switching and synchronous rectification

Package



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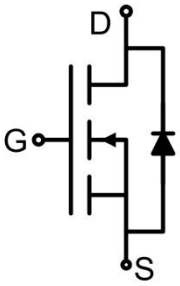
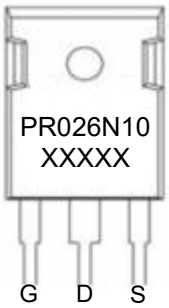
Circuit diagram



Marking



Absolute maximum ratings (T_C=25℃ 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	230	A
Drain Current-Continuous(T_C =100 ºC)	I_D (100 ºC)	165	A
Pulsed Drain Current	I_{DM}	920	A
Power Dissipation	P_D	300	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	0.5	℃/W
Single pulse avalanche energy[1)]	E_{AS}	2300	mJ
Junction Temperature	T_J	175	℃
Storage Temperature	T_{STG}	-55 ~ +175	℃

Electrical characteristics (T_C=25 ºC, 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	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	2.0	3.0	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =115A		2.15	2.6	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D =115A		90		S
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =50V,V_{GS} =0V,f =1MHz		17500		pF
Output Capacitance	C_{oss}			1100		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	V_{DS} =50V,V_{GS} =10V,I_D =100A		240		nC
Gate-Source Charge	Q_{gs}			75		
Gate-Drain Charge	Q_{gd}			60		
Turn-on delay time	$t_{d(on)}$	V_{DD}=50V,V_{GS}=10V, I_D =115A,R_G=1.6Ω		34		nS
Turn-on rise time	t_r			27		
Turn-off delay time	$t_{d(off)}$			78		
Turn-off fall time	t_f			30		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				230	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=115A			1.2	V
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =115A di/dt = 100A/μs		101		nS
Reverse Recovery Charge	Q_{rr}			280		nC

Notes:

1) EAS condition : Tj=25℃,V_{DD}=50V,V_G=10V,L=0.5mH,R_g=25Ω

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

Typical Characteristics

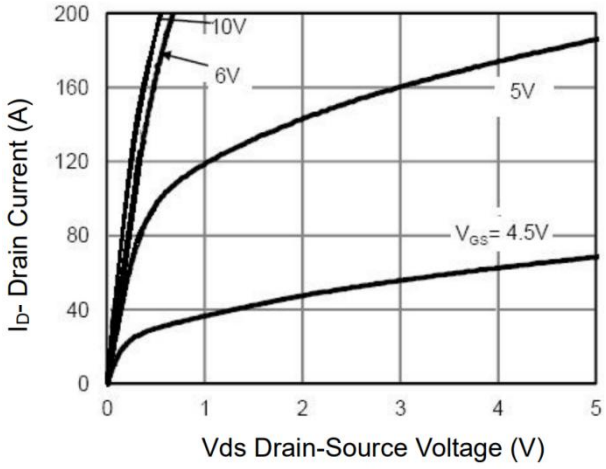


Figure 1 Output Characteristics

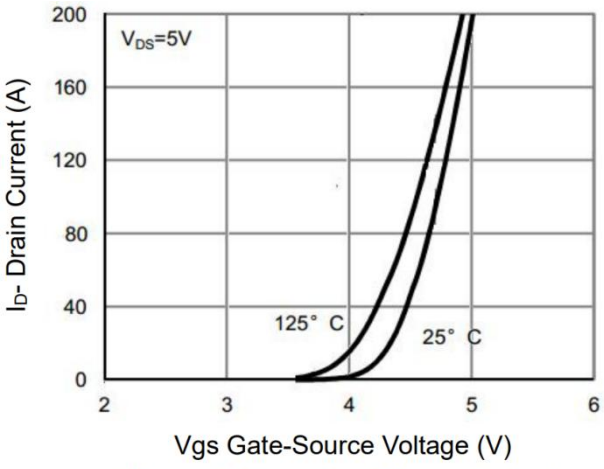


Figure 2 Transfer Characteristics

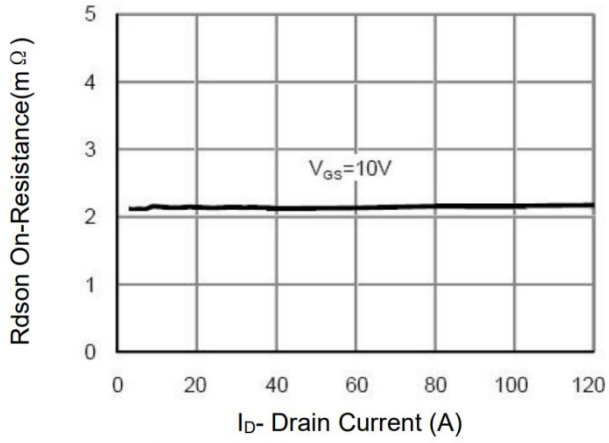


Figure 3 Rdson- Drain Current

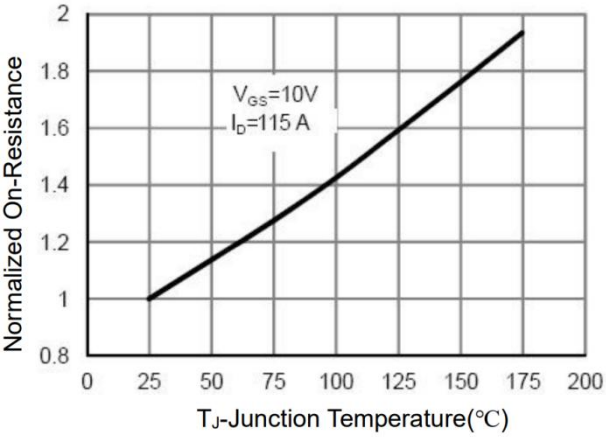


Figure 4 Rdson-Junction Temperature

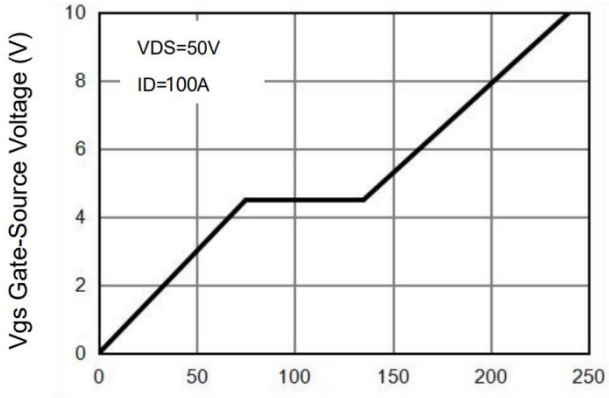


Figure 5 Gate Charge

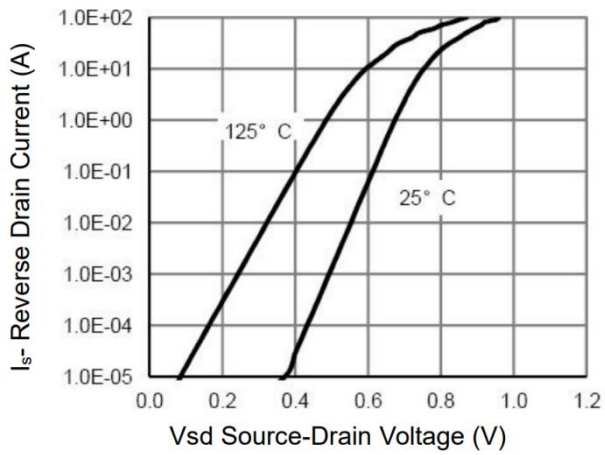


Figure 6 Source- Drain Diode Forward

Typical Characteristics

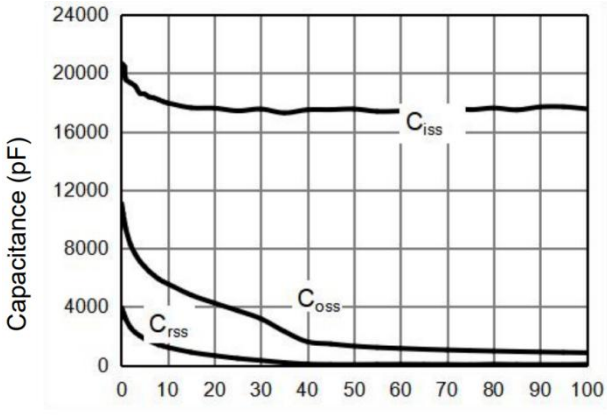


Figure 7 Capacitance vs Vds

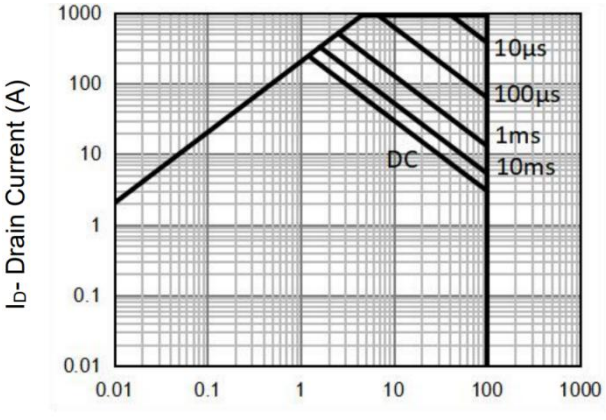


Figure 8 Safe Operation Area

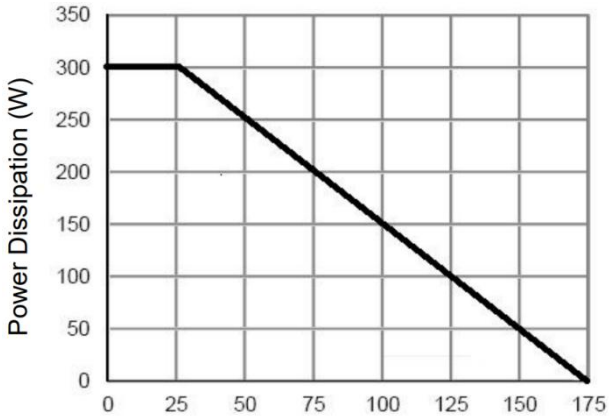


Figure 9 Power De-rating

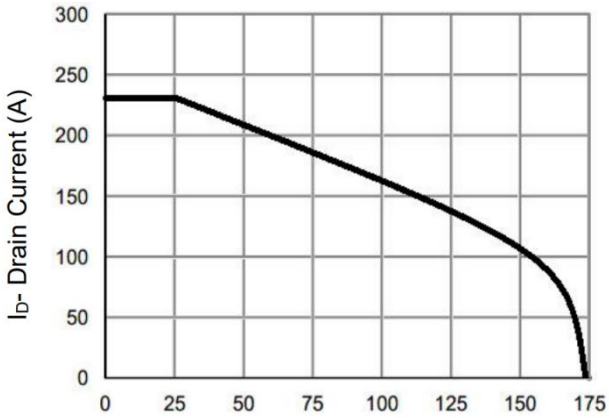


Figure 10 Current De-rating

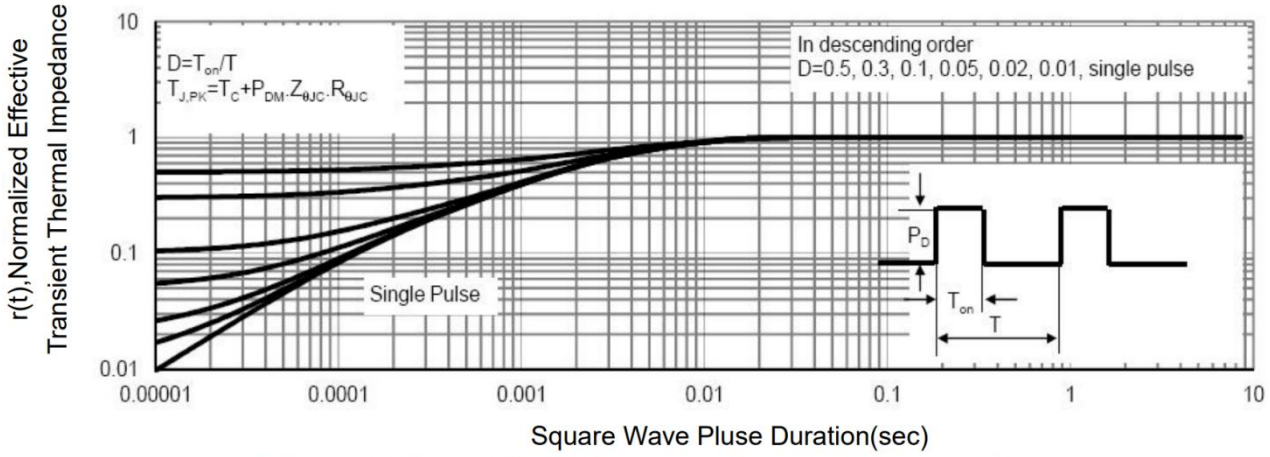
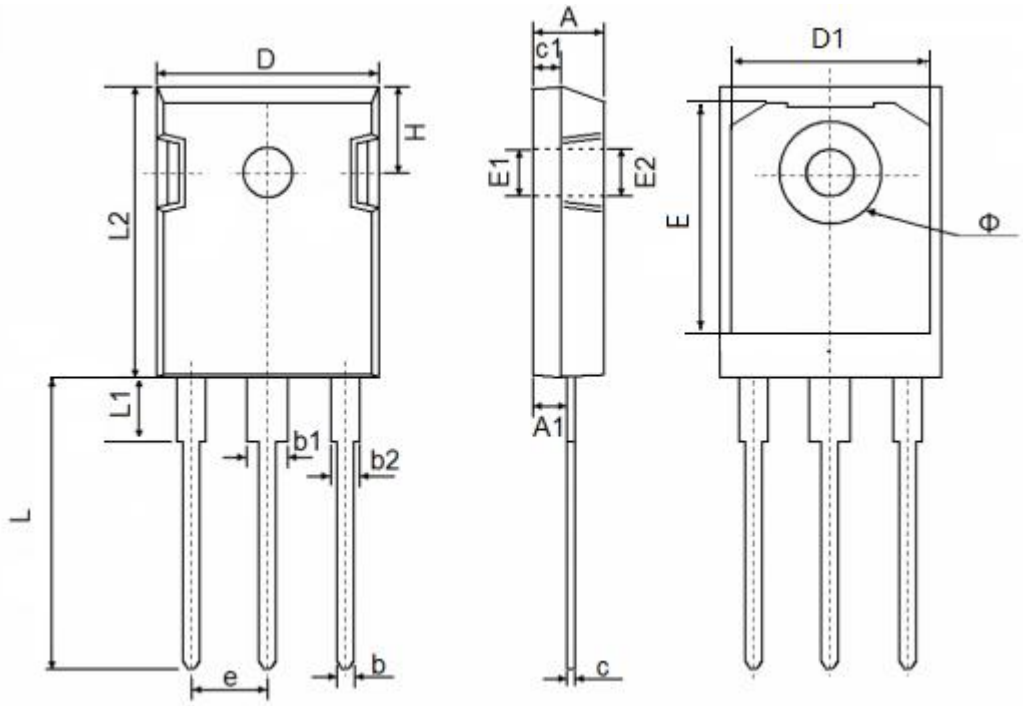


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-247AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.800	5.250	0.189	0.207
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.400	0.110	0.134
b2	1.800	2.420	0.071	0.095
c	0.500	0.700	0.020	0.028
c1	1.900	2.200	0.075	0.087
D	15.700	16.200	0.618	0.638
D1	13.000	14.200	0.512	0.559
E	16.250	17.650	0.640	0.695
E1	3.650	5.500	0.144	0.220
E2	3.650	5.500	0.144	0.220
L	19.800	20.350	0.780	0.801
L1	4.000	4.500	0.157	0.177
L2	20.800	21.200	0.819	0.835
Φ	7.180 BSC		0.283 BSC	
e	5.440 BSC		0.214 BSC	
H	5.300	6.300	0.209	0.248