

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	35mΩ@10V	10A
	40mΩ@4.5V	

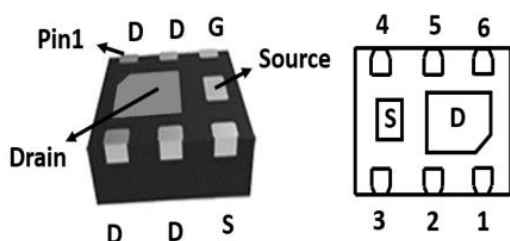
Feature

- Advanced trench process technology
- High density cell design for ultra low on-resistance
- High Speed switching
- Suffix "-Q1" for AEC-Q101

Application

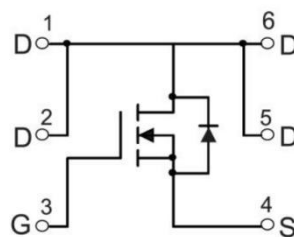
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package

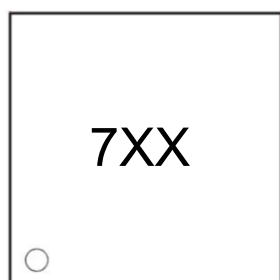


DFN2*2-6L

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	10	A
Pulsed Drain Current	I_{DM}	40	A
Power Dissipation	P_D	3	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	42	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}C$

Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 60V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.2	1.6	2.5	V
Drain-source on-resistance ¹⁾	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$		25	35	m Ω
		$V_{GS} = 4.5V, I_D = 5A$		31	40	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		570		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			64		
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 5A$		25		nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			6		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V, I_D = 5A, R_{GEN} = 3\Omega$		6		nS
Turn-on rise time	t_r			6		
Turn-off delay time	$t_{d(off)}$			17		
Turn-off fall time	t_f			3		
Source-Drain Diode characteristics						
Diode Forward Current ¹⁾	I_S				10	A
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = 10A$			1.2	V
Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}C, I_F = 10A$ $di/dt = 100A/\mu s$		30		nS
Reverse Recovery Charge	Q_{rr}			50		nC

Notes:

1) Pulse Test: Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.

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

Typical Characteristics

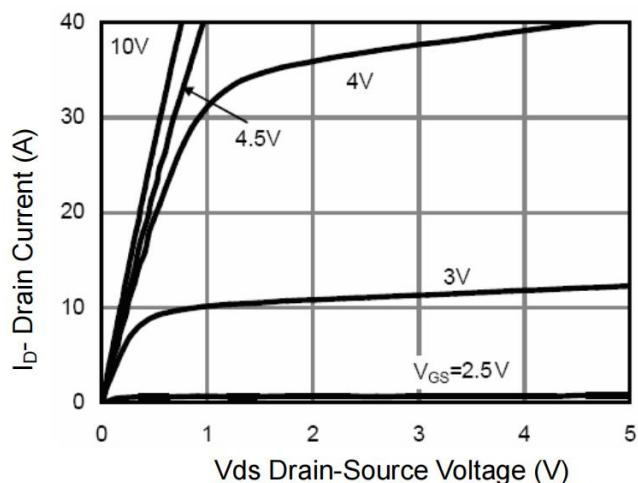


Figure 1 Output Characteristics

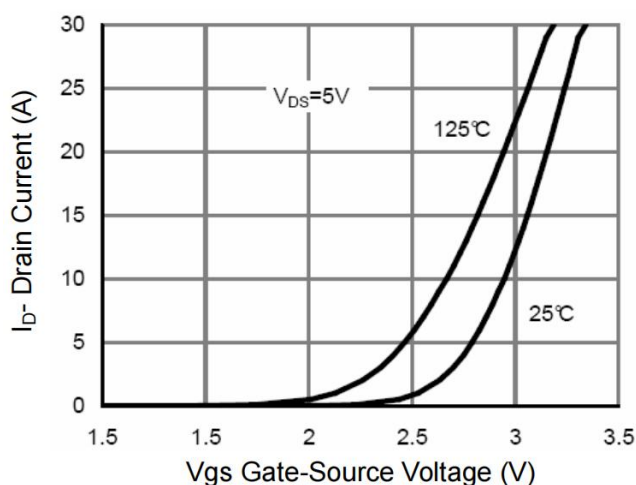


Figure 2 Transfer Characteristics

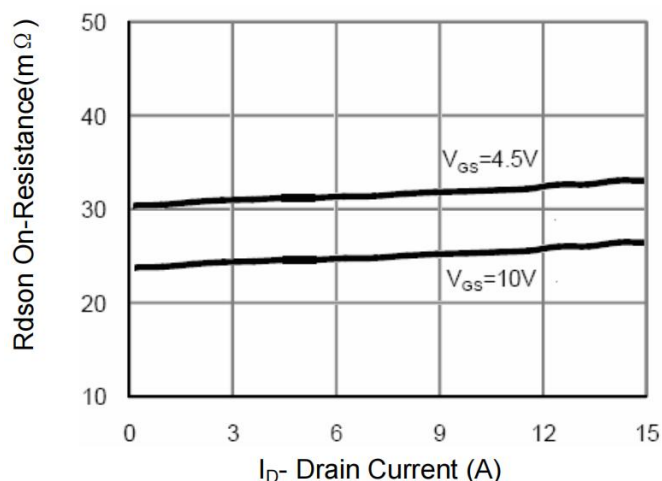


Figure 3 Rdson- Drain Current

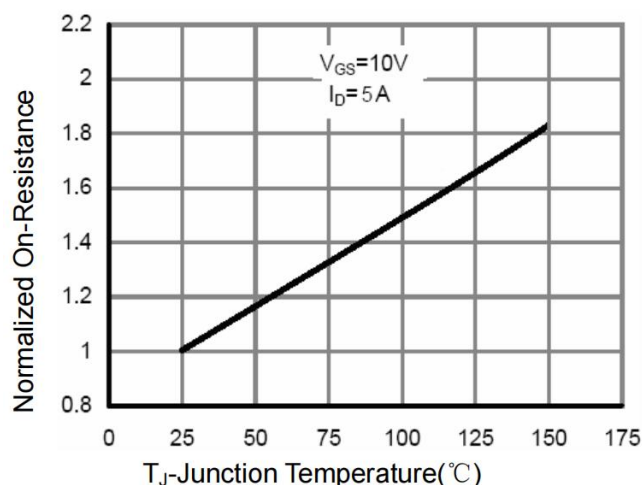


Figure 4 Rdson-Junction Temperature

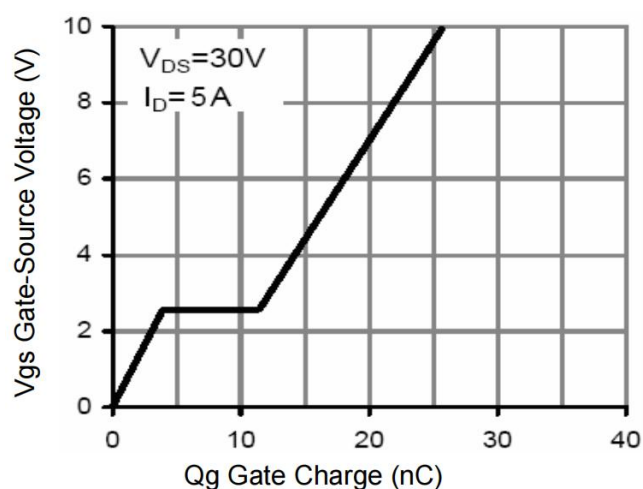


Figure 5 Gate Charge

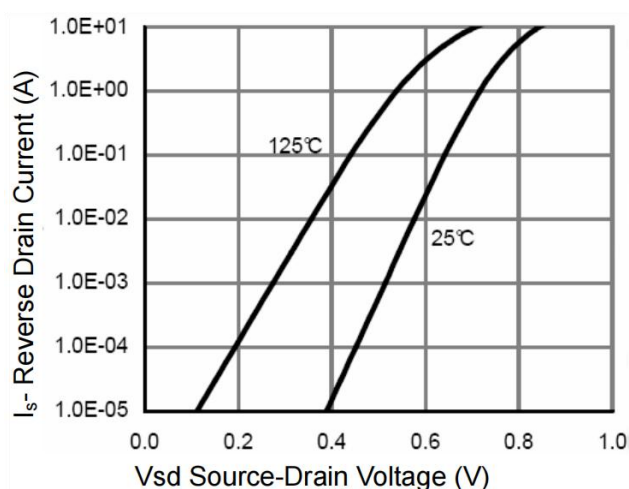


Figure 6 Source- Drain Diode Forward

Typical Characteristics

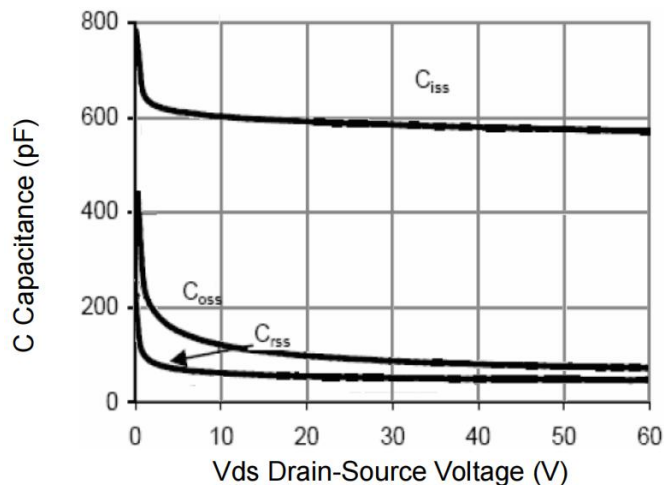


Figure 7 Capacitance vs Vds

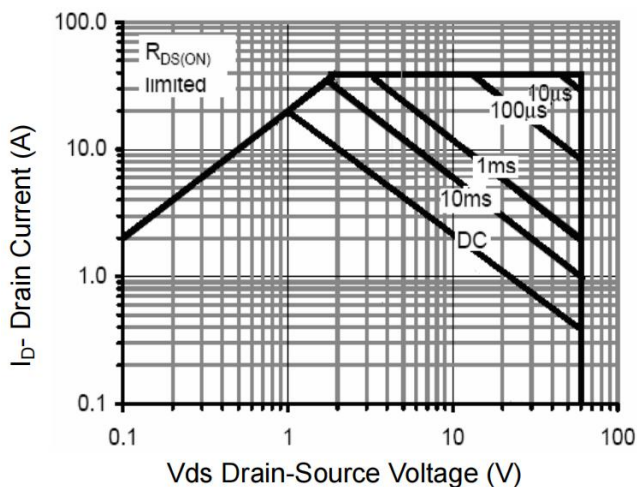


Figure 8 Safe Operation Area

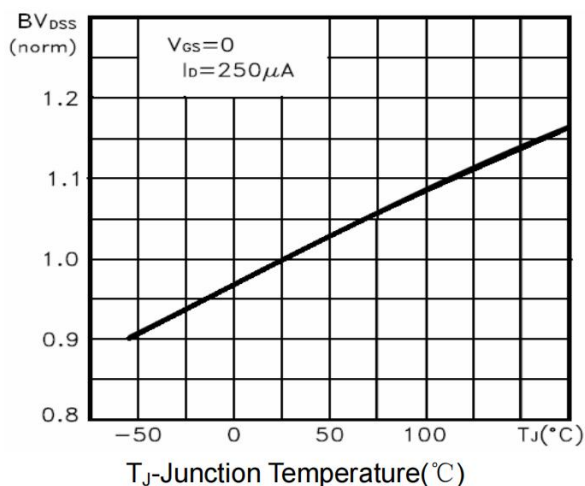


Figure 9 BV_{DSS} vs Junction Temperature

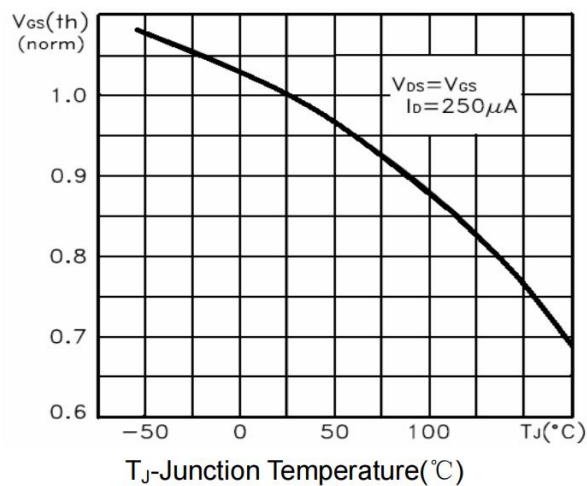


Figure 10 $V_{GS(th)}$ vs Junction Temperature

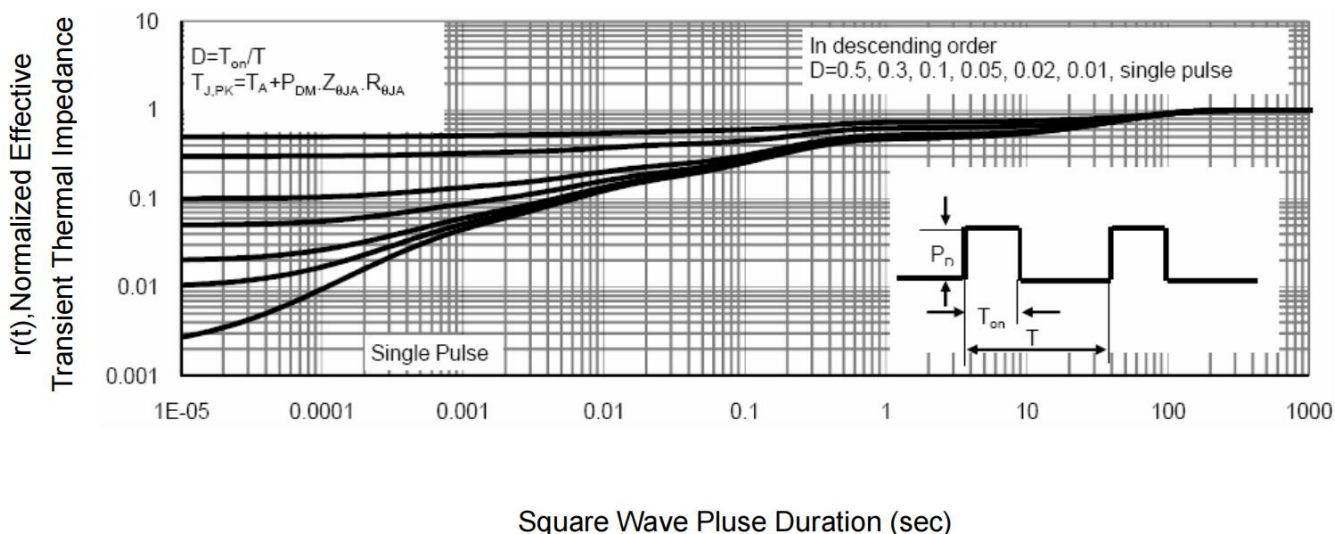
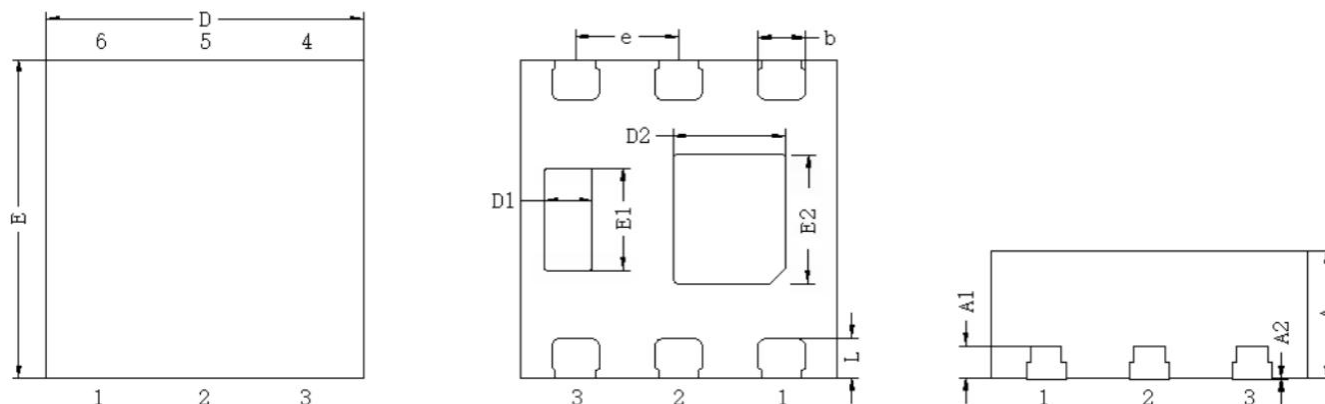


Figure 11 Normalized Maximum Transient Thermal Impedance

DFN2*2-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.850	0.028	0.033
A1	0.200 REF		0.008 REF	
A2	0.000	0.050	0.000	0.002
L	0.170	0.330	0.006	0.013
b	0.250	0.350	0.010	0.014
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
e	0.650 BSC		0.260 BSC	
D1	0.200	0.400	0.008	0.016
E1	0.460	0.660	0.018	0.026
D2	0.800	1.000	0.031	0.039
E2	0.850	1.050	0.033	0.041