JMTQ100N03A-P

Description

Applications

30V, 25A

$R_{DS(ON)}$ < 11.2m V_{GS} = 10V

$R_{DS(ON)}$ < 13.9m V_{GS} = 4.5V

Advanced Trench Technology

Excellent $R_{DS(ON)}$ and Low Gate Charge

Lead Free

PDFN3x3-8L

Package Marking and Ordering Information

Device Marking	Device	Outline	Package	Reel Size	Reel(pcs)	Per Carton (pcs)
Q100N03A	JMTQ100N03A-P	TAPING	PDFN3x3-8L	13"	5000	50000

Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-to-Source Voltage		30	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25°C	25	A
		T_C = 100°C	16	
I_{DM}	Pulsed Drain Current (1)		100	A
E_{AS}	Single Pulsed Avalanche Energy (2)		35	mJ
P_D	Power Dissipation	T_C = 25°C	6	W
R	Thermal Resistance, Junction to Ambient(3)		39.6	°C/W
R	Thermal Resistance, Junction to Case		21.1	
T_J $_{STG}$	Junction & Storage Temperature Range		-55 to 150	°C

Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V	-	-	1.0	μ
I_{GSS}	Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.6	2.5	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(4)	V_{GS} = 10V, I_D = 20A	-	8.0	11.2	mΩ
		V_{GS} = 4.5V, I_D = 10A	-	11.6	13.9	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz	-	1002	-	pF
C_{oss}	Output Capacitance		-	131	-	pF
C_{rss}	Reverse Transfer Capacitance		-	105	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V V_{DD} = 15V, I_D = 20A	-	20	-	nC
Q_{gs}	Gate Source Charge		-	4	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	V_{GS} = 10V, V_{DD} = 15V I_D= 20A, R_{GEN} = 3Ω	-	6	-	ns
t_r	Turn-On Rise Time		-	19	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	22	-	ns
t_f	Turn-Off Fall Time		-	5	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	25	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	100	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = 30A	-	-	1.2	V
trr	Body Diode Reverse Recovery Time	I_F	-	8	-	ns
Qrr	Body Diode Reverse Recovery Charge		-	1.6	-	nC

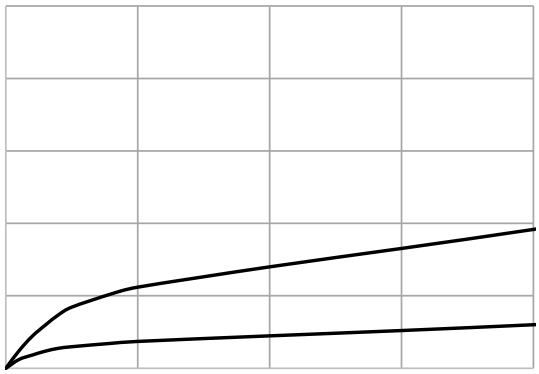
Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25C, V_{DD}=20V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=11.9A

3. R is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB

4. Pulse Test: Pulse Width ≤ ≤ 0.5%.

Typical Performance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

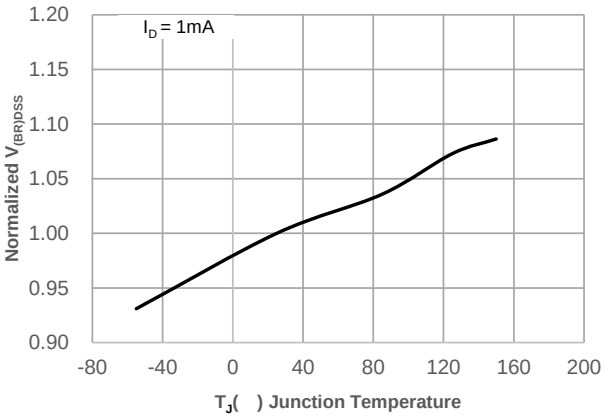
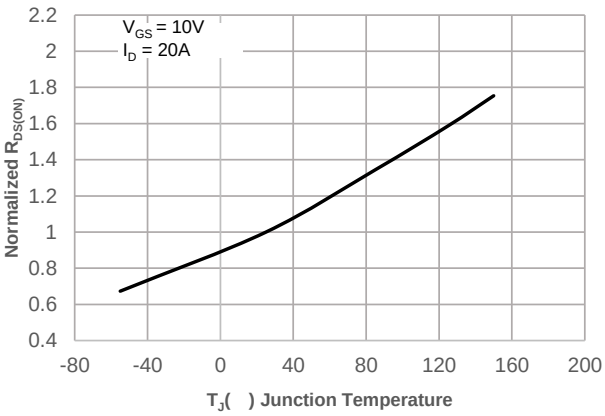
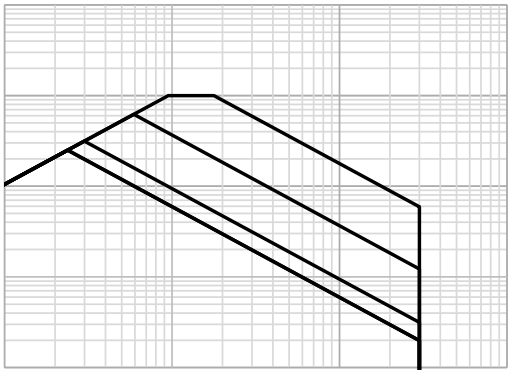


Figure 8: Normalized on Resistance vs. Junction Temperature





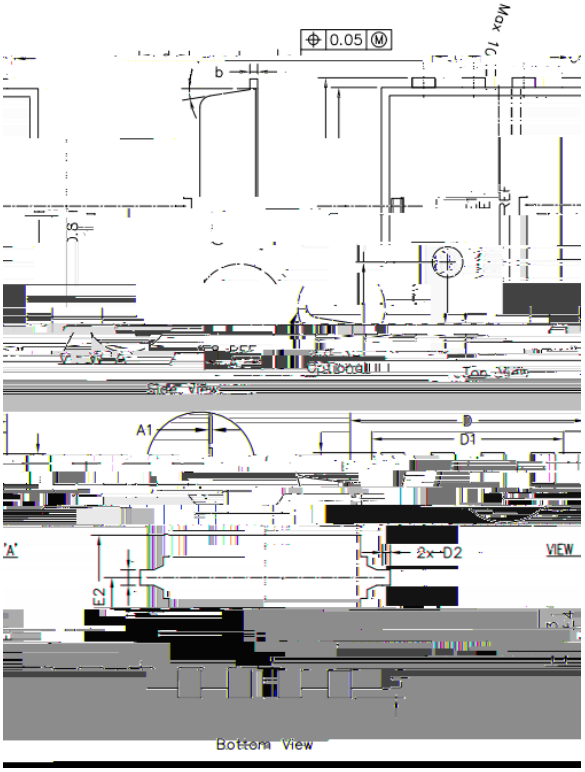
Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

Figure 2: Resistive

Package Mechanical Data(PDFN3x3-8L)



SYMBOLS	DIMENSIONS IN MM			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.750	0.800	0.028	0.030	0.031
A1	---	---	0.050	---	---	0.002
b	0.244	0.252	0.262	0.006	0.006	0.008
	0.116	0.120	0.124	D	2.950	3.050
		0.005			---	
0.116	0.120	0.124		E	2.950	3.050
0.126	0.130	0.134		B1	3.200	3.300
0.300	0.400	0.500	0.01	0.02	0.02	

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