-30V, -50A, 5.9mq P-channel Power Trench MOSFET

JMTQ080P03A

Features

- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS Tested
- 100% Vds Tested
- Halogen-free; RoHS-compliant
- Pb-free plating

Applications

- Load Switch
- PWM Application
- Power Management

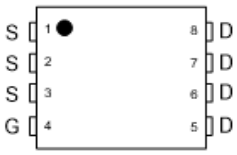
Product Summary

Parameters	Value	Unit
V_{DSS}	-30	V
$V_{GS(th)_Typ}$	-1.5	V
I_D(@V_{GS}=-10V)	-50	A
$R_{DS(ON)_Typ}$(@V_{GS}=-10V)	5.9	m
$R_{DS(ON)_Typ}$(@V_{GS}=-4.5V)	8.1	m

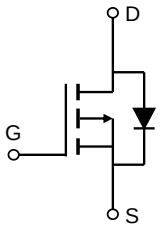




PDFN3X3-8L



Pin Assignment



Schematic

Ordering Information

Device	Marking	MSL	Form	Package	Reel(pcs)	Per Carton (pcs)
JMTQ080P03A	Q080P03A	1	Tape&Reel	PDFN3x3-8L	5000	50000

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

Symbol	Parameter		Value	Unit
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	-50	A
		T_C = 100°C	-32	
I_{DM}	Pulsed Drain Current (1)		Refer to Fig.4	A
E_{AS}	Single Pulsed Avalanche Energy (2)		133	mJ
P_D	Power Dissipation	T_C = 25°C	30	W
		T_C = 100°C	12	
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Max	Unit
R	Thermal Resistance, Junction to Ambient(3)	41	°C/W
R	Thermal Resistance, Junction to Case	4.2	

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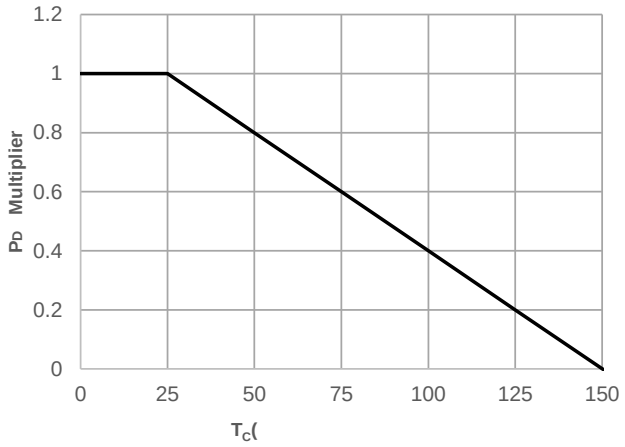
Electrical Characteristics (T_J = 25°C unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit
Off Characteristics				
$V_{(BR)DSS}$	-30	-	-	V
I_{DSS}	-	-	-1.0	A
I_{GSS}	-	-	±100	nA
$V_{GS(th)}$	-1.1	-1.5	-2.0	V
	-	5.9	7.4	m
	-	8.1	10.1	m
R_g	-	11.5	-	
C_{iss}	2405	3366	4545	pF
C_{oss}	336	471	635	pF
C_{rss}	232	324	438	pF
Q_g	-	59	-	nC
Q_{gs}	-	9.5	-	nC
Q_{gd}	-	14	-	nC
$t_{d(on)}$	-	6.8	-	ns
t_r	-	5.7	-	ns
$t_{d(off)}$	-	112	-	ns
t_f	-	78	-	ns
I_S	-	-	-50	A
I_{SM}	-	-	-202	A
V_{SD}	-		-1.2	V
trr	15	21	29	ns
Qrr	-	9.8	-	nC

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

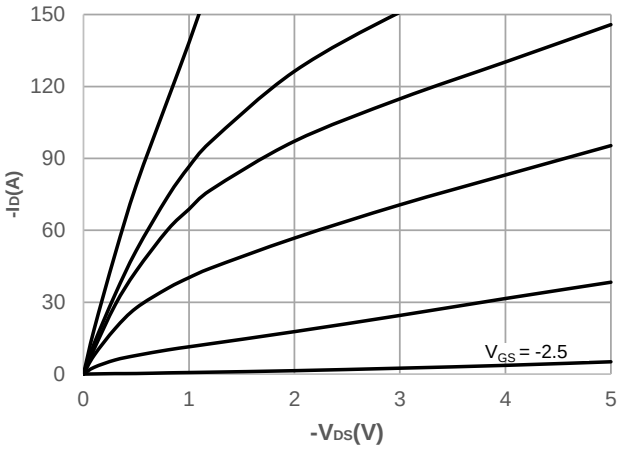
2. E_{AS} condition: Starting T_J=25C, V_{DD}=-15V, V_{GS}=-10V, R_G=25ohm, L=0.5mH, I_{AS}=-23.1A, V_{DD}=0V durQq25.9h2 Tm0 g0 G -0.041 Tc[GS)3 g0 G[=)m08 T5

Typical Performance Characteristics



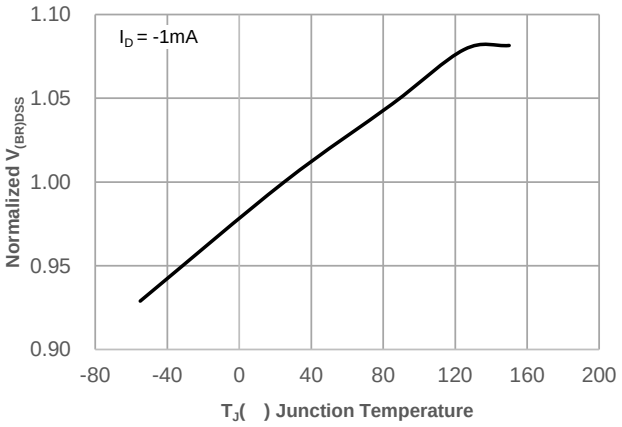
Typical Performance Characteristics

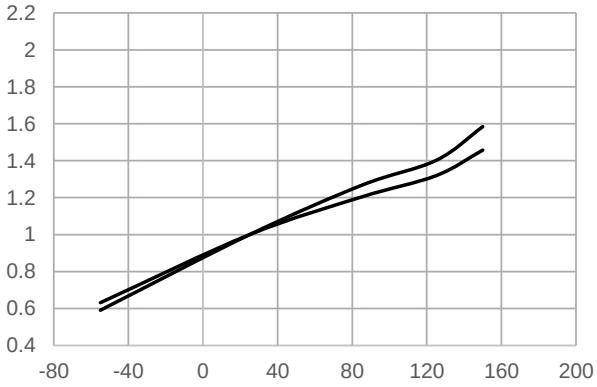
Figure 5: Output Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature





Test Circuit



Figure 1: Gate Charge Test Circuit & Waveform

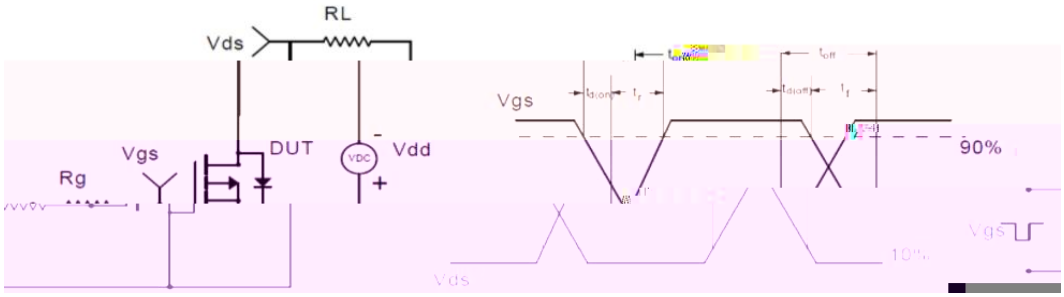


Figure 2: Resistive Switching Test Circuit & Waveform

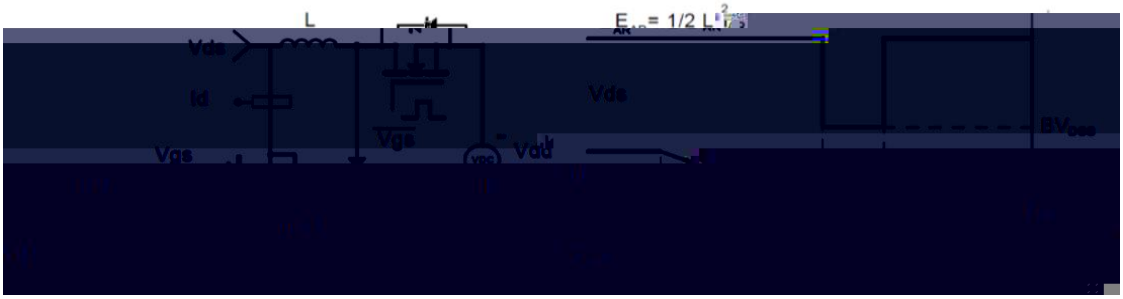


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

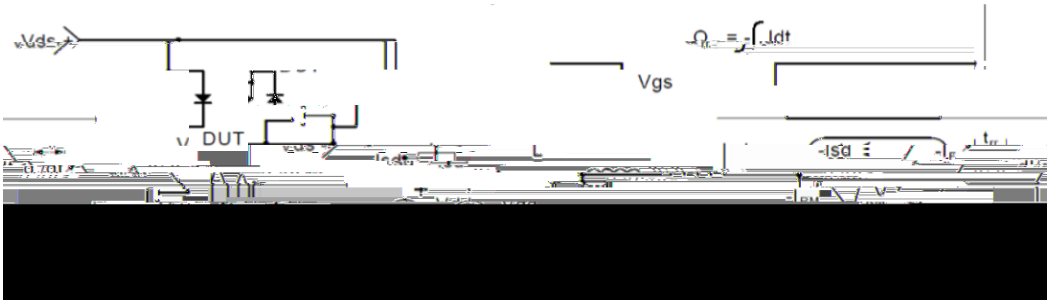
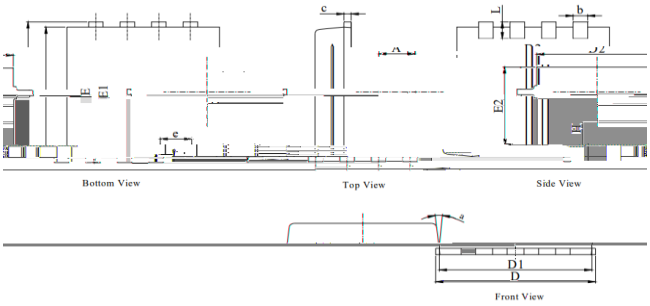


Figure 4: Diode Recovery Test Circuit & Waveform

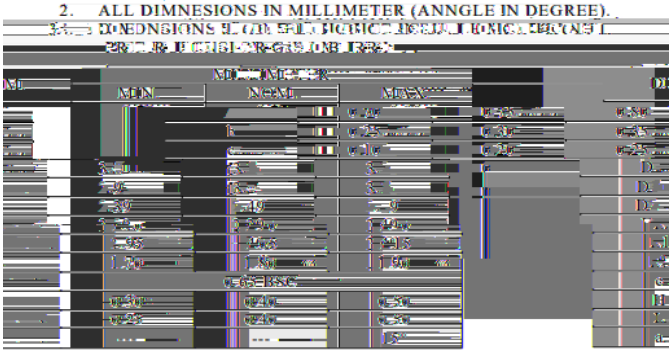
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Package Mechanical Data(PDFN3x3-8L)

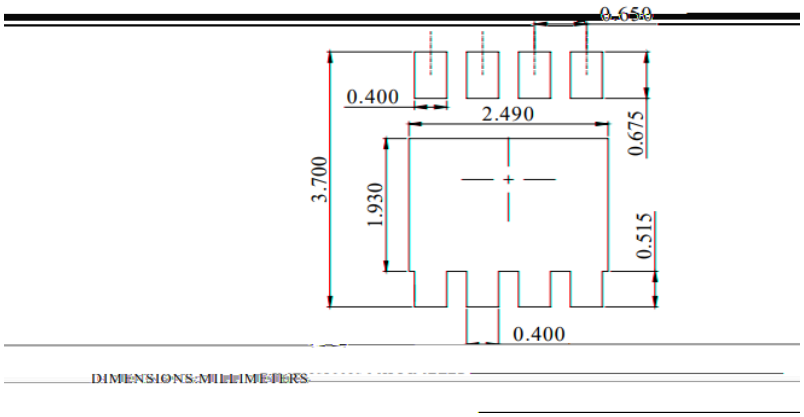
Package Outline



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).



Recommended Soldering Footprint



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