Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	3mΩ@10V	90A
	4mΩ@4.5V	

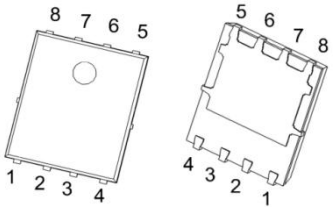
Feature

- Fast switching speed
- Surface mount package
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Applications

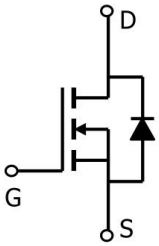
- DC-DC Converters.
- Motor Control.
- Portable equipment application

Package

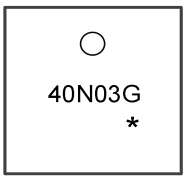


PDFN5X6-8L

Circuit diagram



Marking



40N03G **=Device Code**
***** **=Month Code**

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current1(T_C=25℃)	I_D	90	A
Pulsed Drain Current[2]	I_{DM}	360	A
Single Pulse Avalanche Energy[3]	E_{AS}	376	mJ
Total Power Dissipation[4](T_C=25℃)	P_D	61.4	W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	2.04	℃/W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	65	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

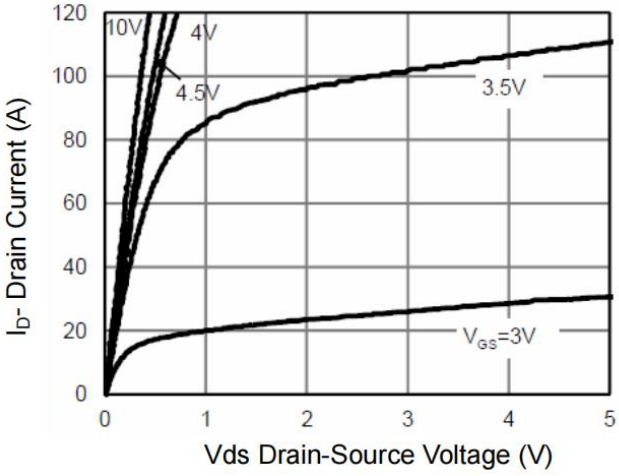
Electrical characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	40	---	---	V
Drain-Source Leakage Current	I_{DSS}	VDS=32V , VGS=0V , TJ=25℃	---	---	1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	1	1.5	2.5	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	VGS=10V , ID=30A	---	3	3.7	mΩ
		VGS=4.5V , ID=30A	---	4	5.3	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=20V , VGS=0V , f=1MHz	---	2800	---	pF
Output Capacitance	C_{oss}		---	720	---	
Reverse Transfer Capacitance	C_{rss}		---	40	---	
Switching Characteristics						
Total Gate Charge	Q_g	VDS=20V , VGS=10V , ID=55A	---	46	---	nC
Gate-Source Charge	Q_{gs}		---	8	---	
Gate-Drain Charge	Q_{gd}		---	7.5	---	
Turn-On Delay Time	$T_{d(on)}$	VDD=20V , VGS=10V , RG=1.6Ω, ID=55A	---	10	---	ns
Rise Time	T_r		---	5	---	
Turn-Off Delay Time	$T_{d(off)}$		---	32	---	
Fall Time	T_f		---	5.5	---	
Diode Characteristics						
Diode Forward Voltage2	V_{SD}	VGS=0V , IS=1A , TJ=25℃	---	---	1.2	V

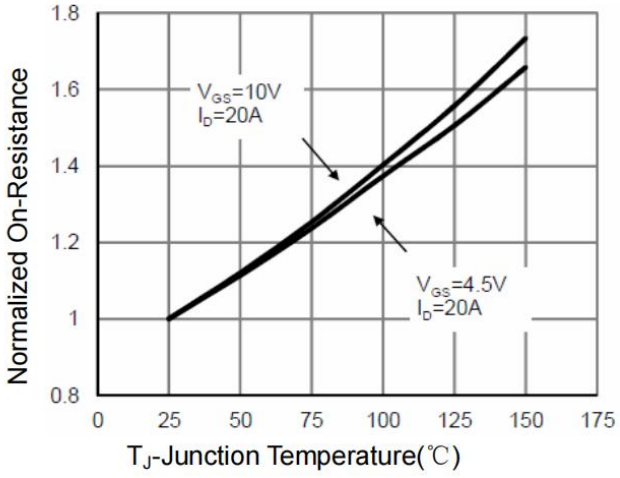
Note :
1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

The EAS data shows Max. rating . The test condition is VDD=20V,VGS=10V,L=0.5mH,RG=25Ω

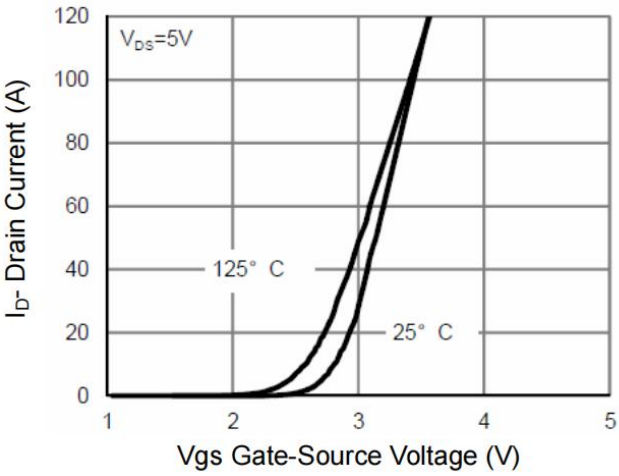
Typical Characteristics



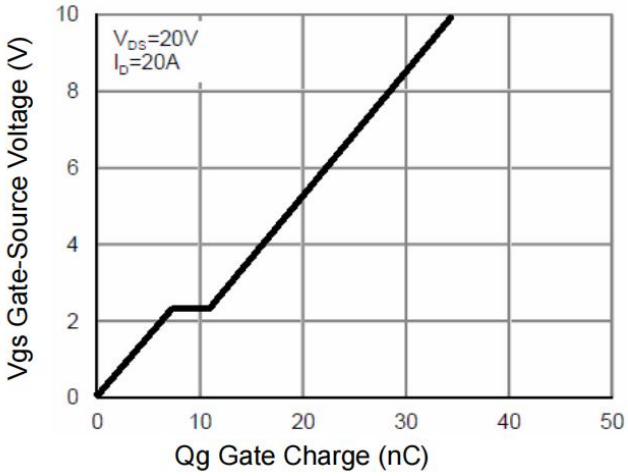
Output Characteristics



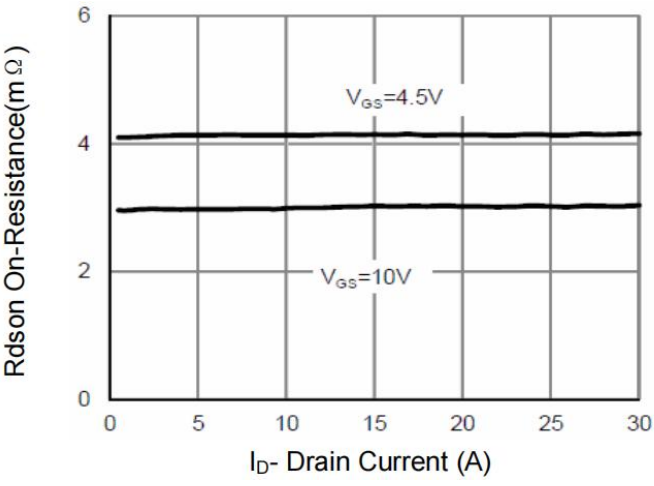
Rdson-Junction Temperature



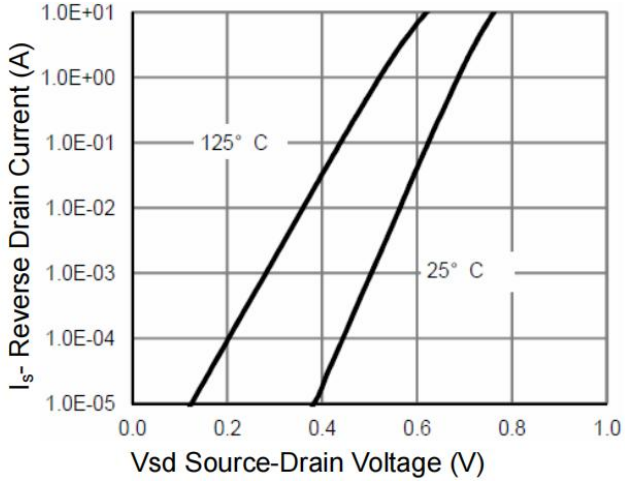
Transfer Characteristics



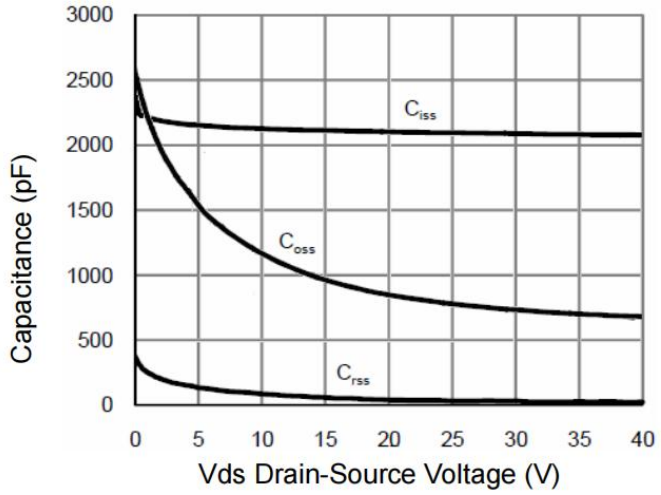
Gate Charge



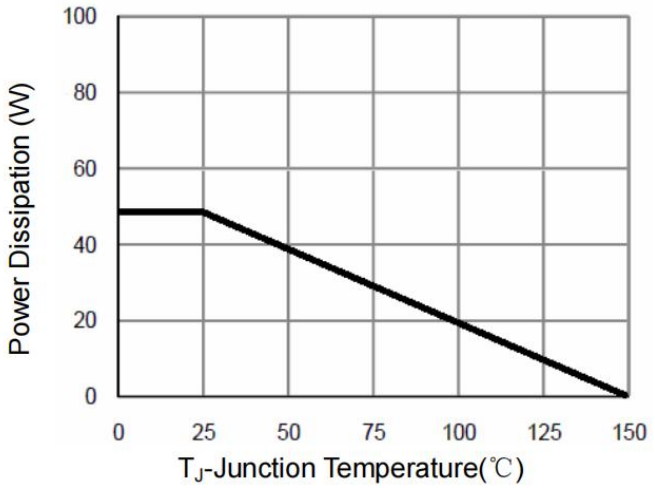
Rdson- Drain Current



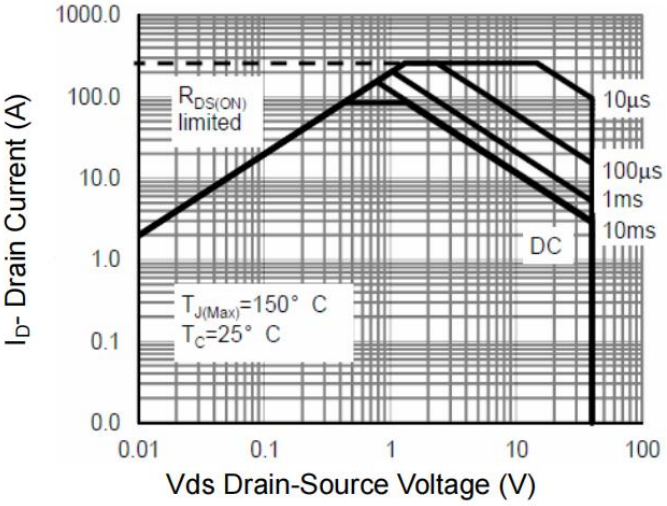
Source- Drain Diode Forward



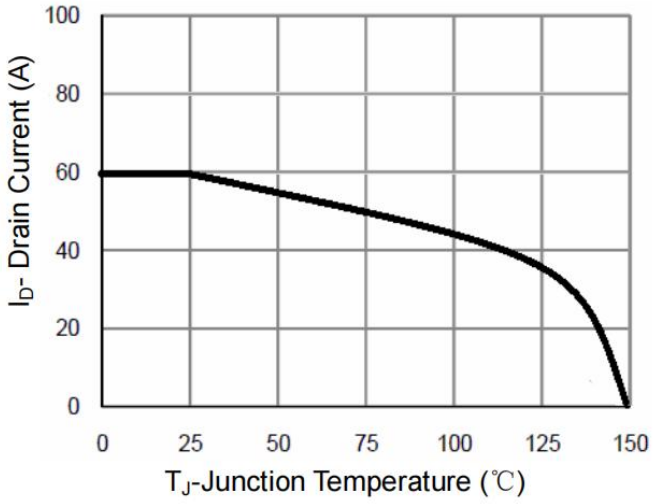
Capacitance vs Vds



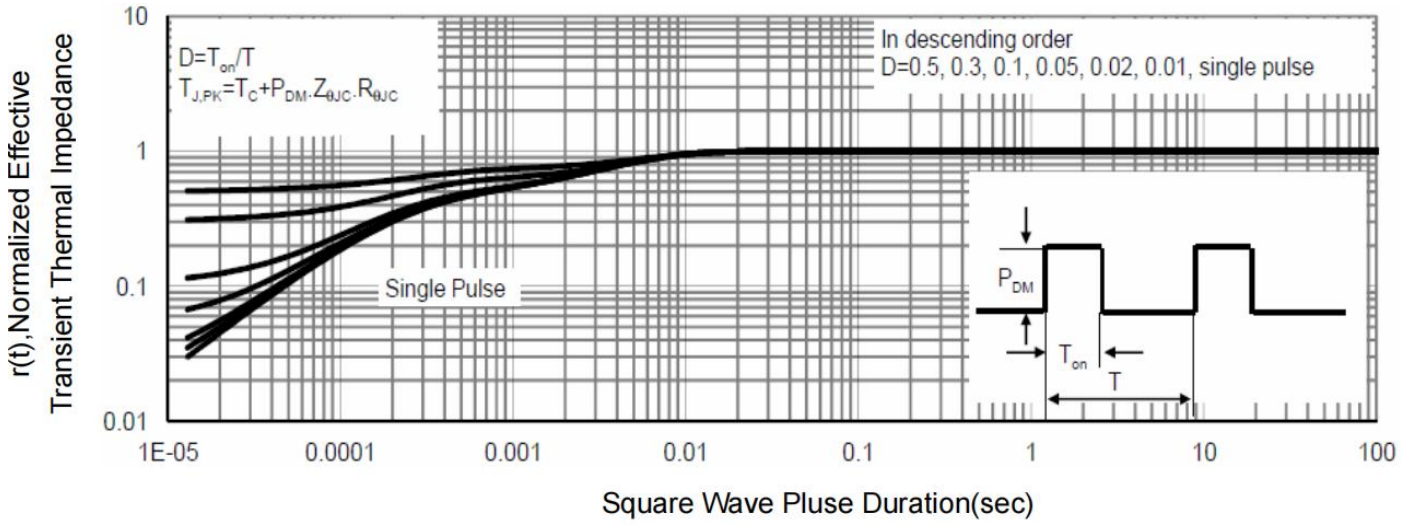
Power De-rating



Safe Operation Area

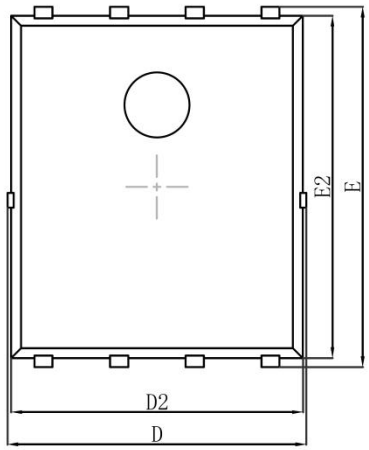


Current De-rating

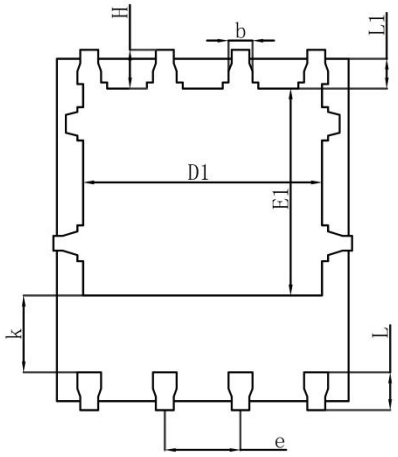


Normalized Maximum Transient Thermal Impedance

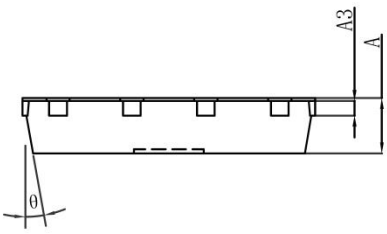
PDFN5X6-8L Package Information



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	3.910	4.110	0.154	0.162
E1	3.375	3.575	0.133	0.141
D2	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°

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