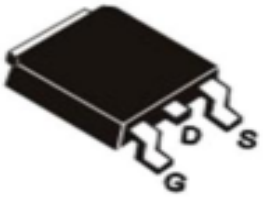
FMD7N60E5 N-CHANNEL POWER MOSFET

Features :

- Fast body diode eliminates the need for external diode in ZVS applications.
- Lower gate charge results in simpler drive requirements
- Higher gate voltage threshold offers improved noise immunity
- Low on-resistance
- RoHS compliant

V_{DSS}	600	V
I_D	7	A
Trr	198	ns
$R_{DS(ON)Typ}$	1.1	Ω



TO-252T

Applications:

- Motor control
- Uninterruptible power supplies
- Zero voltage switching SMPS

Absolute（Tc= 25℃）:

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	600	V
I_D	Continuous Drain Current	7*	A
	Continuous Drain Current T_C = 100 °C	4.8*	A
I_{DM}①	Pulsed Drain Current	28*	A
V_{GS}	Gate-to-Source Voltage	±30	V
E_{AS}②	Single Pulse Avalanche Energy	440	mJ
E_{AR}①	Avalanche Energy, Repetitive	50	mJ
I_{AR}①	Avalanche Current	3.3	A
P_D	Power Dissipation	96	W
dv/dt	Peak Diode Recovery dv/dt	5	V/nS
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature Range	–55 to 150	℃

*: Drain current is limited by maximum junction temperature

Ordering Information

Product number	Package	Marking	Packing	Quantity
FMD7N60E5	TO252T	FMD7N60E5	Tape & Reel	2500

Electronic Characteristics（Tc=25°C）

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	600			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta Tj$	I_D=250uA, Referenced to 25°C		0.6		V/°C
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS}=V_{DS}, I_D=250μA	2		4	V
Drain-source Leakage Current	I_{DSS}	V_{DS} =600V,V_{GS} =0V, Tj=25°C			1	μA
		V_{DS} =480V,V_{GS} =0V, Tj=125°C			100	μA
Forward Transconductance	gfs	V_{DS} =15V, I_D=3.5A ③		7		S
Gate-body Leakage Current	I_{GSS}	V_{DS} =0V,V_{GS} =±30V			±100	nA
Drain-source On Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D=3.5A ③		1.1	1.5	Ω
Input Capacitance	Ciss	V_{GS} = 0V, V_{DS} = 25V F = 1.0MHZ		1050		pF
Output Capacitance	Coss			84		
Reverse transfer Capacitance	Crss			12		
Turn-on Delay Time	Td(on)	V_{DD}=300V, I_D =7.0A RG=25Ω ③		17		ns
Rise Time	Tr			20		
Turn -Off Delay Time	Td(off)			39		
Fall Time	Tf			18		
Total Gate Charge	Qg	I_D =7.0A, V_{DS} = 480V VGS = 10V ③		21		nC
Gate-to-Source Charge	Qgs			4.8		nC
Gate-to-Drain Charge	Qgd			6.5		nC
Continuous Diode Forward Current	I_S				7	A
Max Pulsed Diode Forward Current	I_{SM}				28	A
Diode Forward Voltage	V_{SD}	Tj=25°C, Is=7.0A,V_{GS} =0V ③			1.4	V
Reverse Recovery Time	trr	Tj=25°C, If=7.0A di/dt=100A/μs ③		198		ns
Reverse Recovery Charge	Qrr			0.5		uC
Thermal Resistance Junction-case	Rth_{JC}			1.3		°C/W
Thermal Resistance Junction-ambient	Rth_{JA}			62.5		°C/W

Notes:

① Repetitive rating: Pulse width is limited by the maximum junction temperature

② Starting Tj=25°C, V_{DD} =50V, L=18mH, R_G =25Ω, I_{AS}=7.0A

③ Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

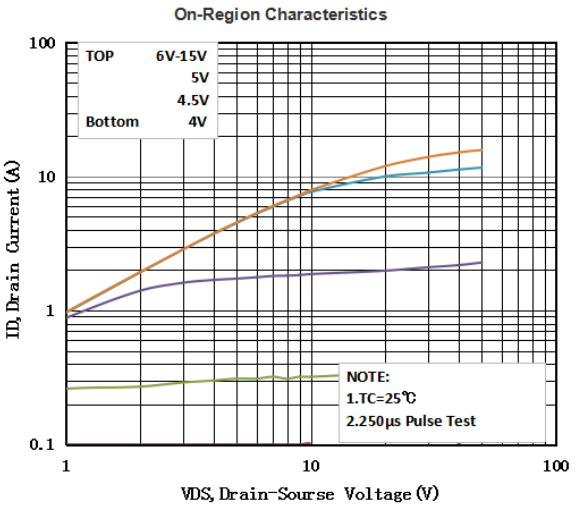


Fig.1 Typical Output Characteristics, Tc=25℃

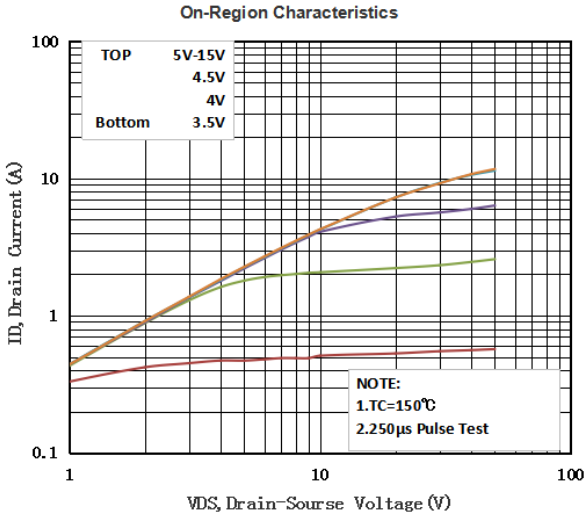


Fig.2 Typical Output Characteristics, Tc=150℃

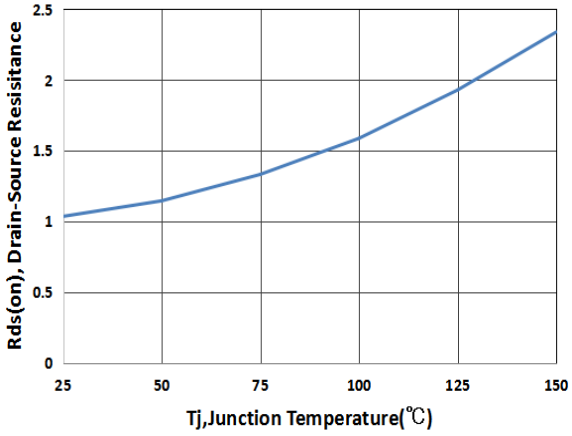


Fig.3 On-Resistance Vs. Temperature

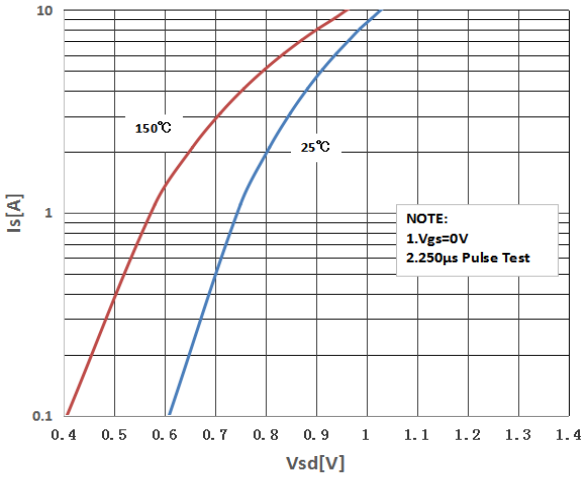


Fig.4 Typical Source-Drain Diode Forward Voltage

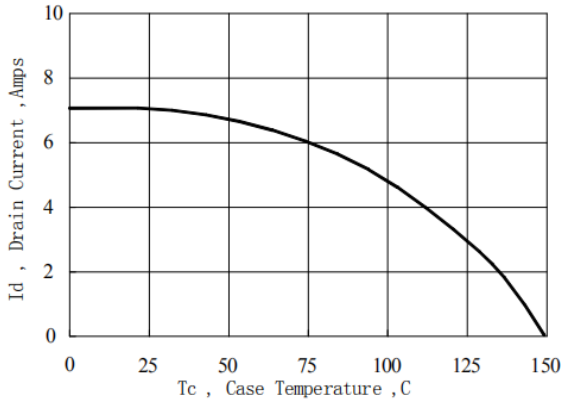


Fig.5 Maximum Drain Current Vs. Case Temperature

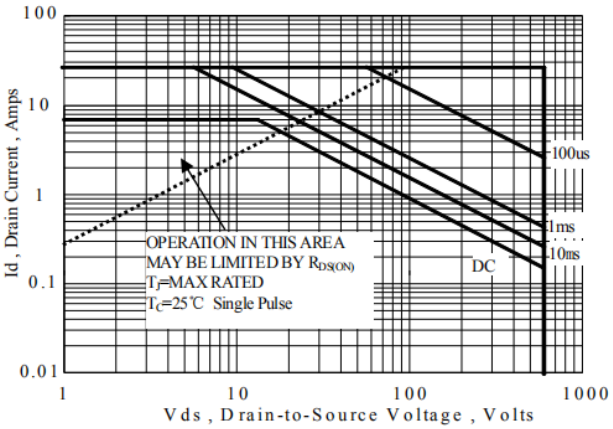


Fig.6 Maximum Safe Operating Area

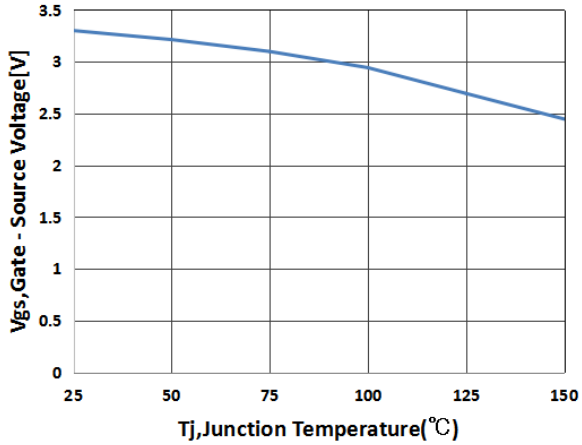


Fig.7 Gate Threshold Voltage Variation vs. Temperature

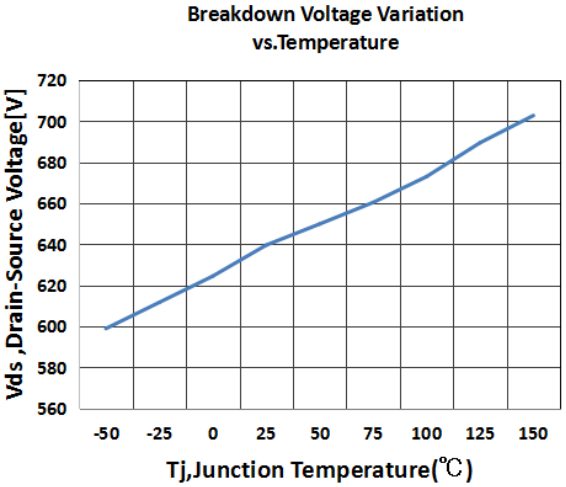


Fig.8 Breakdown Voltage Variation vs. Temperature

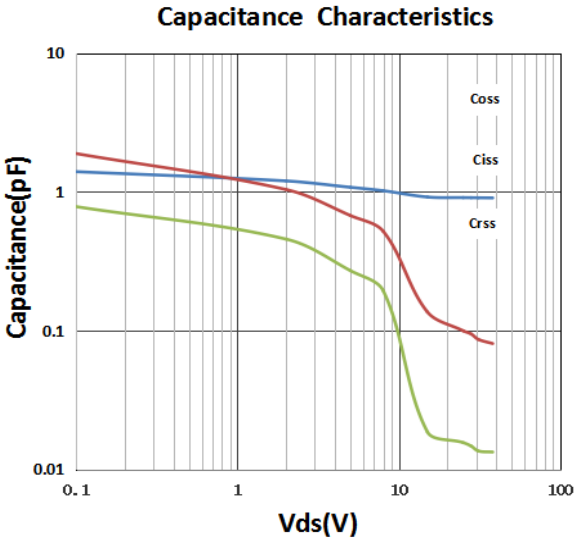


Fig.9 Capacitance Characteristics

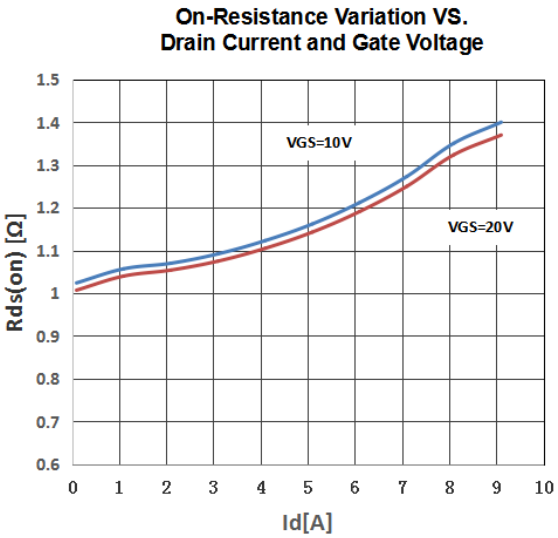


Fig.10 On-Resistance Variation VS. Drain Current and Gate Voltage

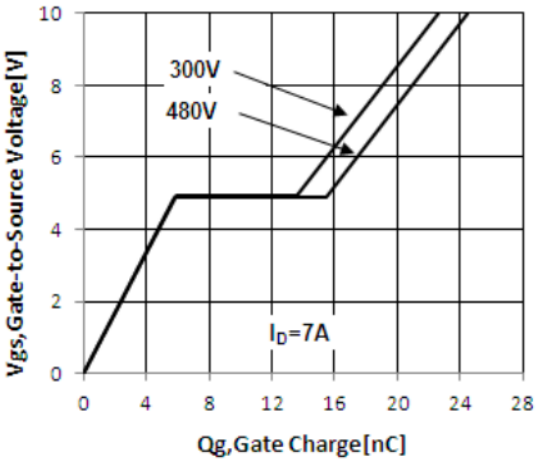


Fig.11 Gate Charge VS Gate to Source Voltage

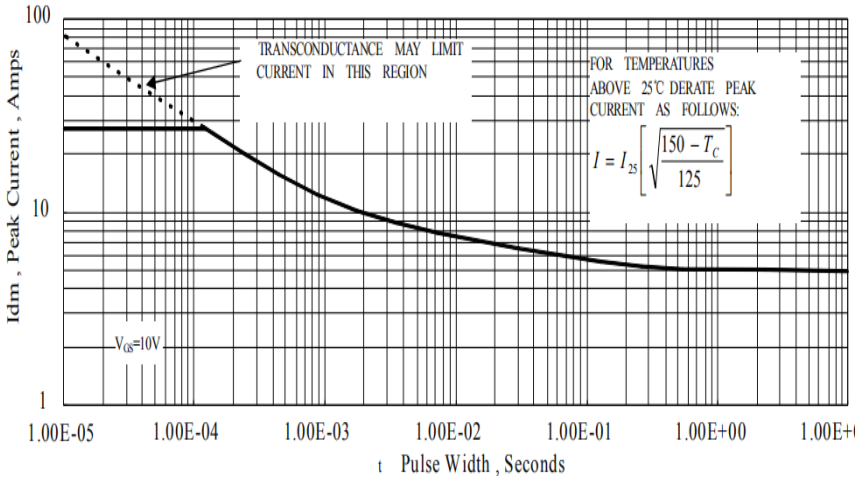


Fig.12 I_{DM} VS Pulse Width

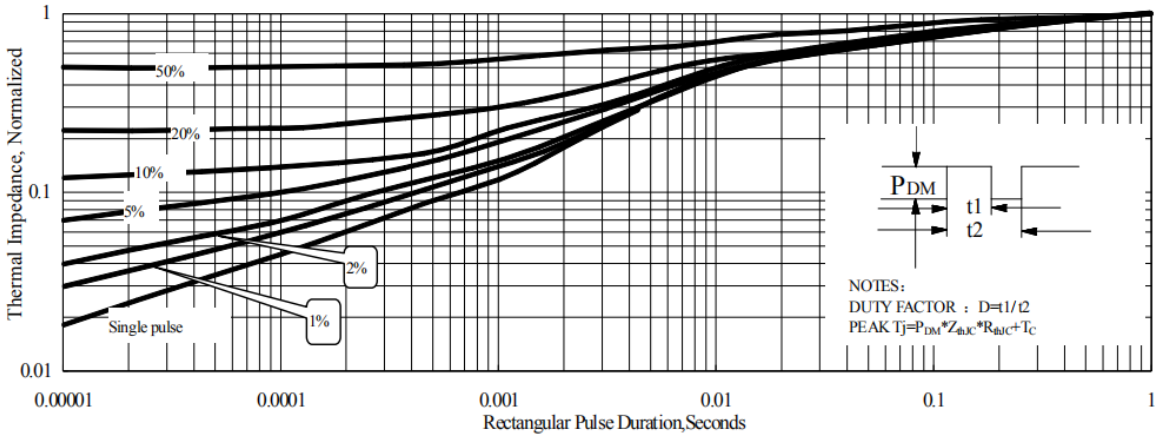
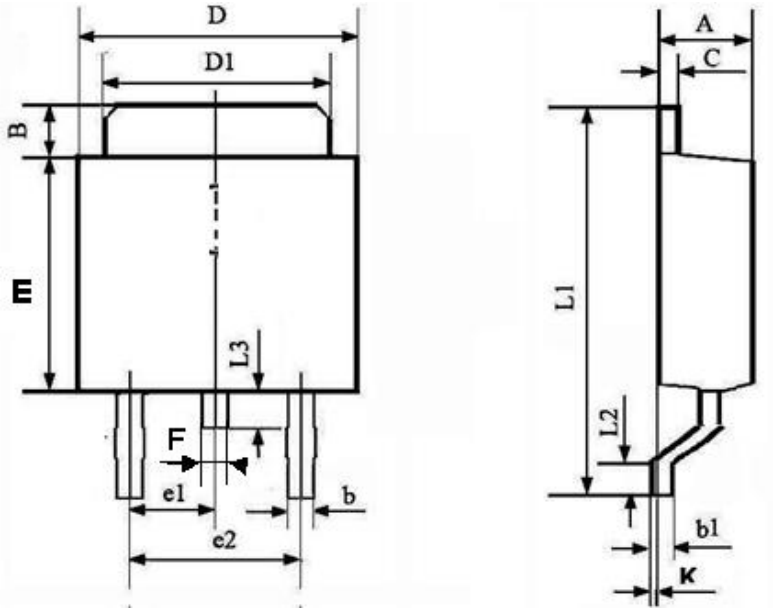


Fig.13 Normalized Thermal Impendence VS Rectangular Pulse Duration

TO-252T MECHANICAL DATA

UNIT：mm

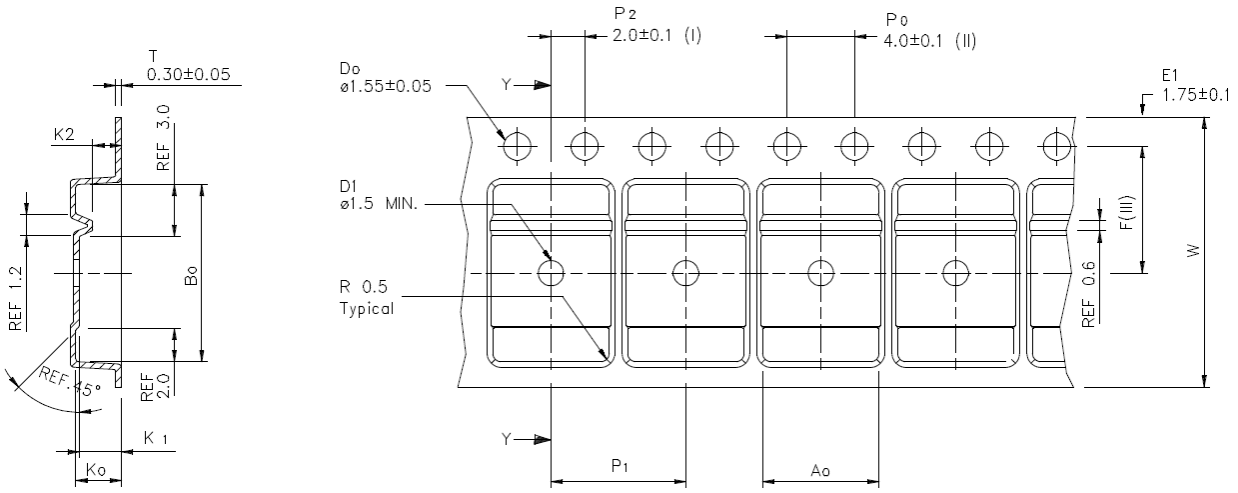
SYMBOL	min	max	SYMBOL	min	max
A	2.20	2.40	B	0.85	1.25
b	0.50	0.80	C	0.45	0.70
b1	0.45	0.70	D	6.30	6.70
D1	5.10	5.50	E	5.30	6.20
L1	9.20	10.60	F	0.50	0.90
L2	0.90	1.50	e1	2.25	2.35
L3	0.60	1.10	e2	4.50	4.70
			K	0.00	0.18



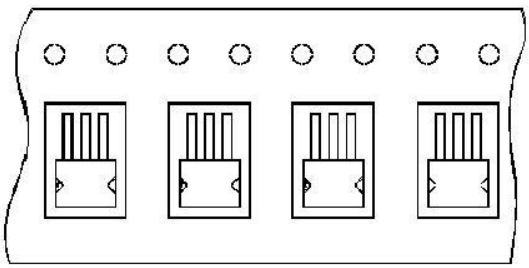
TO-252T TAPE AND REEL DATA

UNIT：mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A0	6.80	6.90	7.00	B0	10.40	10.50	10.60
K0	2.60	2.70	2.90	K1	2.40	2.50	2.60
F	7.40	7.50	7.60	K2	1.60	1.70	1.80
W	15.90	16.00	16.10	P1	7.90	8.00	8.10



USER DIRECTION OF FEED



UNIT ORIENTATION

Copyright Notice

Right to make changes —Fortior Technology (Shenzhen) Co., Ltd reserves the right to make changes in the products - including circuits, standard cells, and/or software - described or contained herein in order to improve design and/or performance. The information contained in this manual is provided for the general use by our customers. Our customers should be aware that the personal computer field is the subject of many patents. Our customers should ensure that they take appropriate action so that their use of our products does not infringe upon any patents. It is the policy of Fortior Technology (Shenzhen) Co., Ltd. to respect the valid patent rights of third parties and not to infringe upon or assist others to infringe upon such rights.

Fortior Technology (Shenzhen) Co., Ltd.

Room203,2/F, Building No.11,Keji Central Road2,
SoftwarePark, High-Tech Industrial Park, Shenzhen, P.R. China 518057
Tel: 0755-26867710
Fax: 0755-26867715
URL: http://www.fortiortech.com

Contained herein

单击下面可查看定价，库存，交付和生命周期等信息

>>FORTIOR