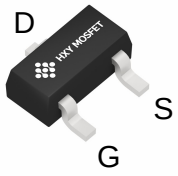
General Description

The FDN8601 use advanced SGT MOSFET technology to provide low RDS(ON), low gate charge, fast switching and excellent avalanche characteristics.

This device is specially designed to get better ruggedness and suitable to use in

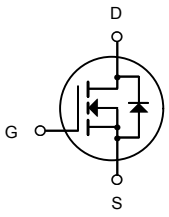


SOT-23-3L

General Features

V_{DS} =100V I_D =5 A

$R_{DS(ON)}$ < 140mΩ@ V_{GS}=10V



N-Channel MOSFET

Applications

Consumer electronic power supply Motor control

Synchronous-rectification Isolated DC

Synchronous-rectification applications

Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
FDN8601	SOT-23-3L	HXY MOSFET	3000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	5	A
I_D@T_C=70℃	Continuous Drain Current, V_{GS} @ 10V	2.2	A
I_{DM}	Pulsed Drain Current[2]	11	A
P_D@T_C=25℃	Total Power Dissipation[4]	1	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta JC}$	Thermal Resistance from Junction-to-Ambient[3]	80	℃/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	125	℃/W

Electrical Characteristics T_C=25℃ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	100	110	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics note3						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.0	1.95	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance note2	V_{GS} = 10V, I_D = 3A	-	95	140	mΩ
Dynamic Characteristics note4						
C_{iss}	Input Capacitance	V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz	-	196	-	pF
C_{oss}	Output Capacitance		-	25.9	-	pF
C_{rss}	Reverse Transfer Capacitance		-	21.4	-	pF
Q_g	Total Gate Charge	V_{DS} = 50V, I_D = 3A, V_{GS} = 10V	-	4.3	-	nC
Q_{gs}	Gate-Source Charge		-	3.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	3.1	-	nC
Switching Characteristics note4						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 50V, I_{DS}=3A R_G = 2Ω, V_{GEN} = 10V	-	14.7	-	ns
t_r	Turn-On Rise Time		-	3.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	20.9	-	ns
t_f	Turn-Off Fall Time		-	2.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current note2		-	-	4.5	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	12	A
V_{SD}	Drain to Source Diode Forward Voltage note3	V_{GS} = 0V, I_S =3A	-	-	1.3	V
t_{rr}	Body Diode Reverse Recovery Time	V_{GS} = 0V, I_F = 3A, di/dt =100A/μs	-	32.1	-	ns
Q_{rr}	Body Diode Reverse Recovery Time Charge		-	39.4	-	nC
I_{rrm}	Peak Reverse Recovery Current		-	2.1	-	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤2%.
4. Guaranteed by design, not subject to production
5. V_{DD}=50 V, R_G=50 Ω, L=0.3 mH, starting T_j=25 °C

Typical Characteristics

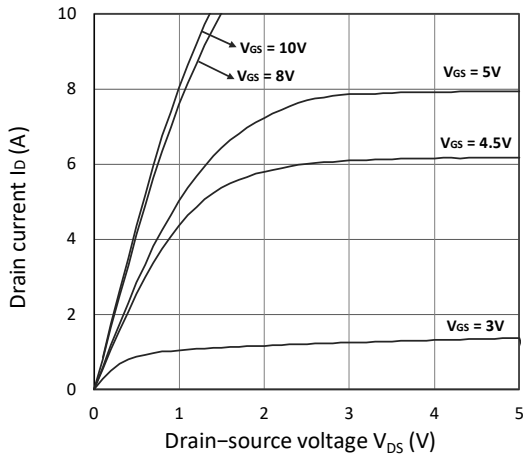


Figure 1. Output Characteristics

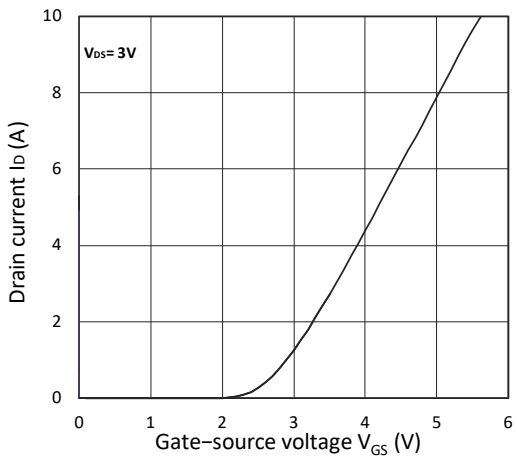


Figure 2. Transfer Characteristics

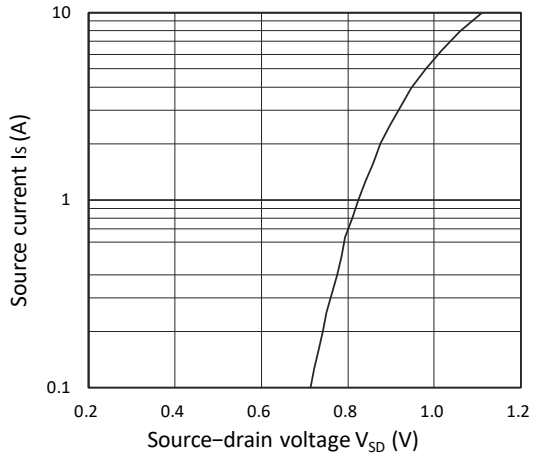


Figure 3. Forward Characteristics of Reverse

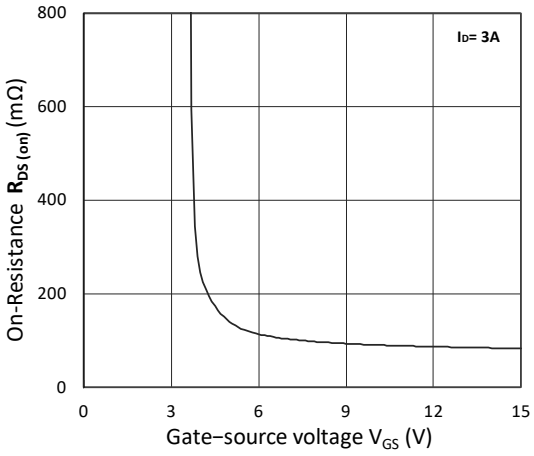


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

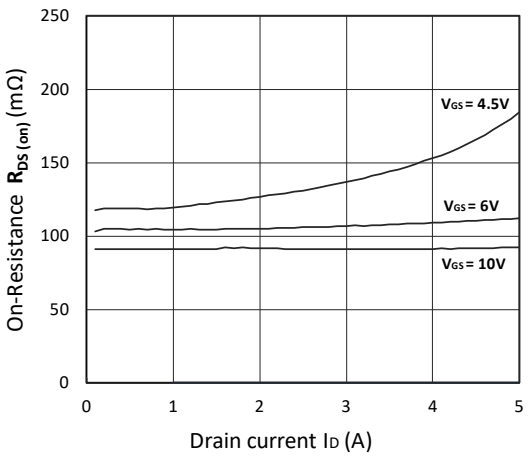


Figure 5. $R_{DS(ON)}$ vs. I_D

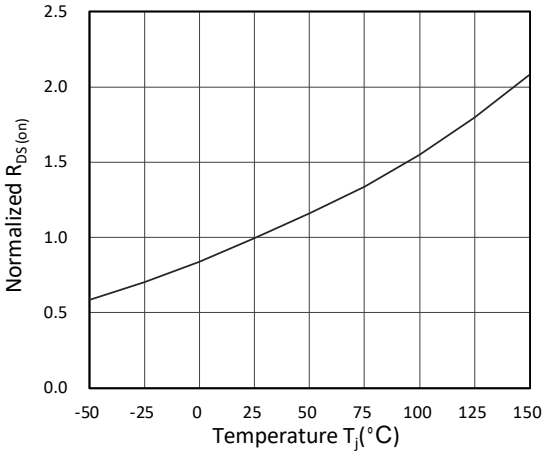


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

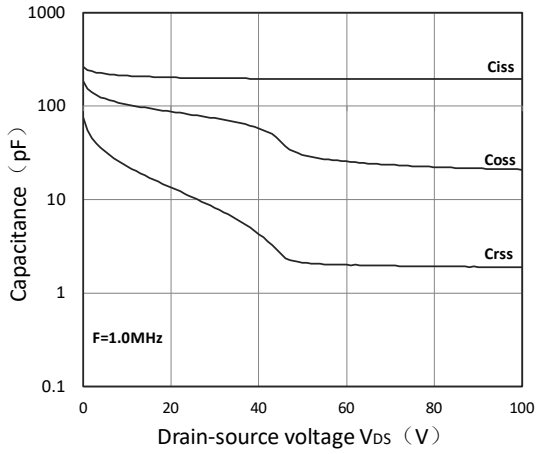


Figure 7. Capacitance Characteristics

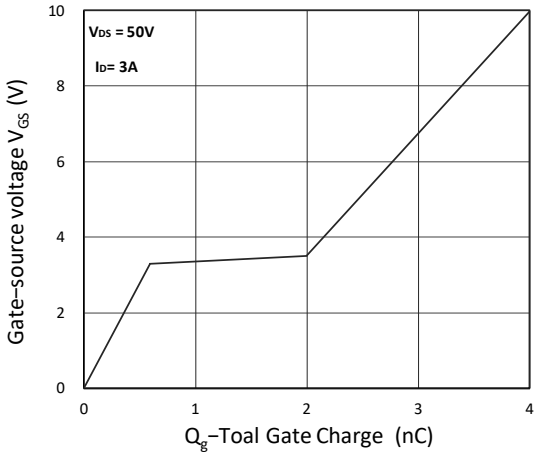
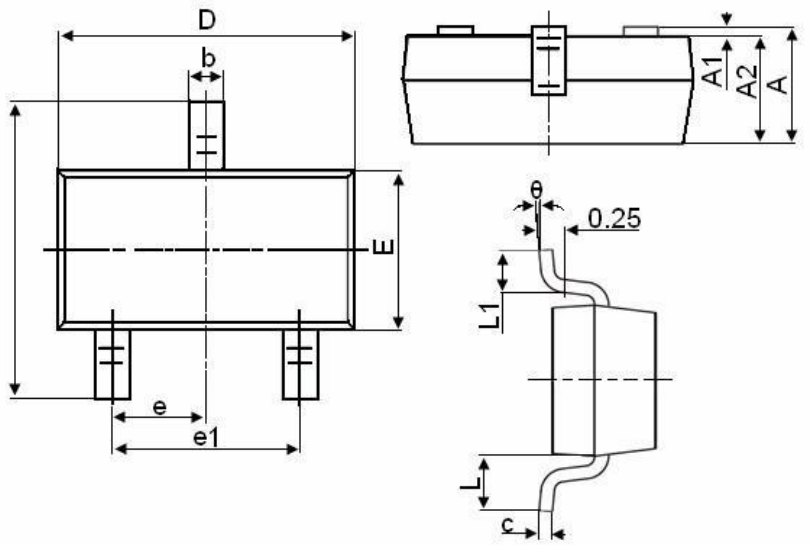


Figure 8. Gate Charge Characteristics

SOT-23-3L Package Information



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.300	0.500
c	0.100	0.200
D	2.800	3.000
E	1.500	1.700
E1	2.650	2.950
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.600
θ	0°	8°

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MMBT3904T HXY8205ES PESD5V0S1BB SQJA04EP-T1_BE3 SS5150B HOPA2340UA HXY2300MI
MAX487ESA P6SMB36CA SS1045 SS510C TPSMB28A-VR US2M HMCP602-I/SN SS10100
TPSMB100CA-VR DTC143ZE IRLML6246PBF BZT52C13 HAD8542ARZ HC4D20120A HT7150