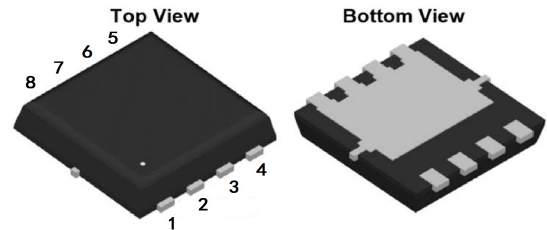# JESTEK

JST60N30D3

30V N-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 9.5m\Omega$ (7mΩ Typ.) @V_{GS}=10V

- $R_{DS(ON)} \leq 13.5m\Omega$ (9mΩ Typ.) @V_{GS}=4.5V

APPLICATIONS

- Consumer electronic power supply
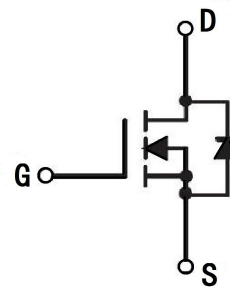- Motor control
- Isolated DC/DC convertor

MARKING

JST
60N30
YYMM

YYMM:Date Code(year&month)

PDFN3.3*3.3-8L

| 1: S | 3: S | 5: D | 7: D |
| 2: S | 4: G | 6: D | 8: D |

N-CHANNEL MOSFET
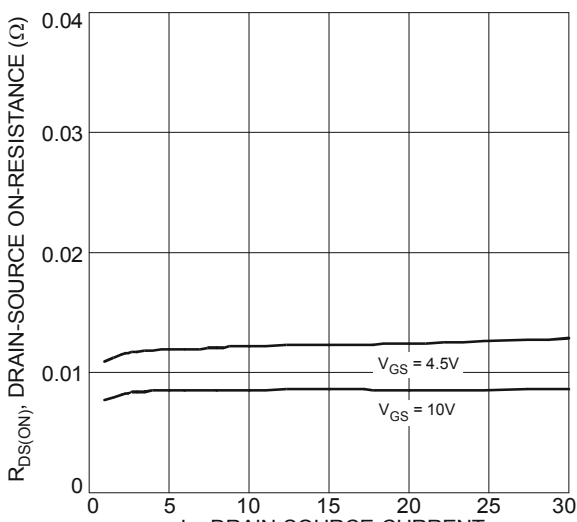

MAXIMUM RATINGS (T_C=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current [note1]	54	A
I_{DM}	Pulsed Drain Current [note1] [note2] [note3]	200	A
P_{tot}	Total Power Dissipation [note1]	41	W
E_{AS}	Single Pulsed Avalanche Energy	35	mJ
$R_{\theta JC}$	Thermal Resistance, Junction to Case [note1]	3.13	℃/W
T_J	Junction Temperature	150	℃
T_{STG}	Storage Temperature Range	-55 to +150	℃

MOSFET ELECTRICAL CHARACTERISTICS Tc=25 °C 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	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V, T_J = 25℃	-	-	1	µA
I_{GSS}	Gate to Body Leakage Current	V_{GS} =±20V, V_{DS}=0V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS}, I_D = 250µA	1.0	1.7	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance note4	V_{GS} =10V, I_D =12A	-	7	9.5	mΩ
		V_{GS} =4.5V, I_D =10A	-	9	13.5	
Dynamic Characteristics note5						
C_{iss}	Input Capacitance	V_{DS} =15V, V_{GS} = 0V, f = 1.0MHz	-	1070	-	pF
C_{oss}	Output Capacitance		-	165	-	pF
C_{rss}	Reverse Transfer Capacitance			118	-	pF
Q_g	Total Gate Charge	V_{DS}=15V, I_D=30A, V_{GS}=10V	-	30.1	-	nC
Q_{gs}	Gate-Source Charge		-	4.5	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	1.8	-	nC
Switching Characteristics note5						
$t_{d(on)}$	Turn-On Delay Time	V_{GS} = 10V, V_{DS}=30V, R_G =3Ω, R_L =1.5Ω	-	15	-	ns
t_r	Turn-On Rise Time		-	3.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	31	-	ns
t_f	Turn-Off Fall Time		-	5	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_{SD}=1A, T_J = 25℃	-	0.71	1.0	V
t_{rr}	Reverse Recovery Time	V_{GS} = 0V, I_S =30A, di/dt =100A/µs	-	12	-	ns
Q_{rr}	Reverse Recovery Charge		-	10.5	-	nC

Notes: 1. Surface Mounted on 1 in^2 pad area, t≤10 sec

2. Pulse width ≤10µs, Duty Cycle ≤ 1%.

3. limited by bonding wire

4. Pulse test: pulse width ≤300µs, Duty Cycle ≤ 2%.

5. Guaranteed by design, not subject to production testing

TYPICAL PERFORMANCE CHARACTERISTICS
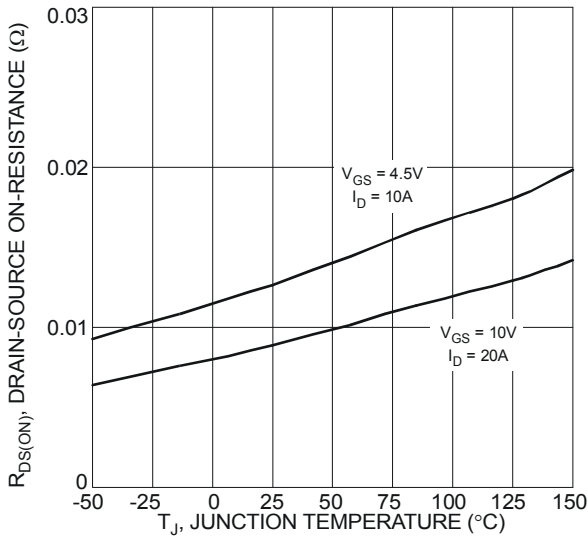

Fig.1 Typical Output Characteristic

Fig. 2 Typical Transfer Characteristics

Fig. 3 Typical On-Resistance vs.
Drain Current and Gate Voltage

Fig. 4 Typical On-Resistance vs. Gate Voltage

Fig. 5 Typical On-Resistance vs.
Drain Current and Temperature

Fig. 6 On-Resistance Variation with Temperature
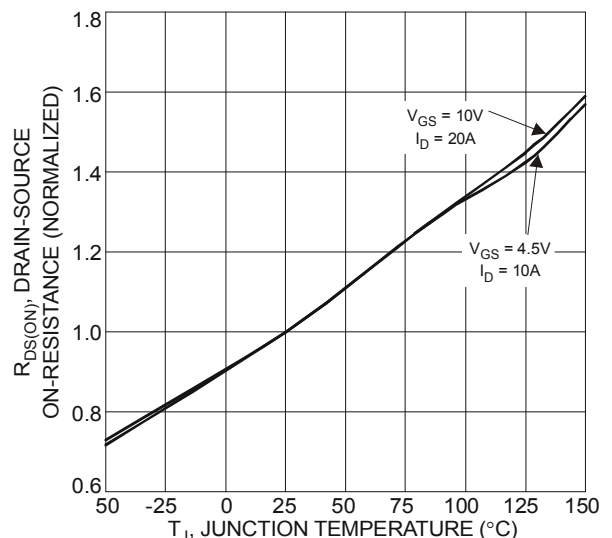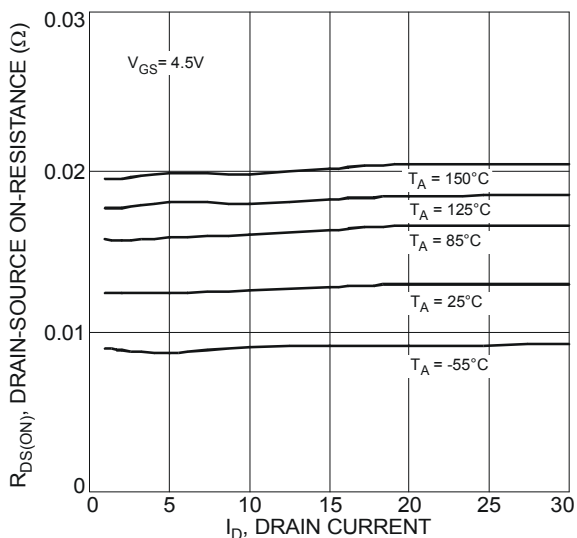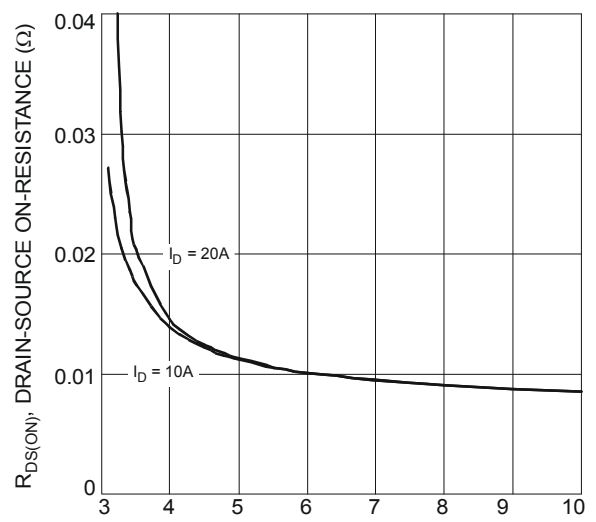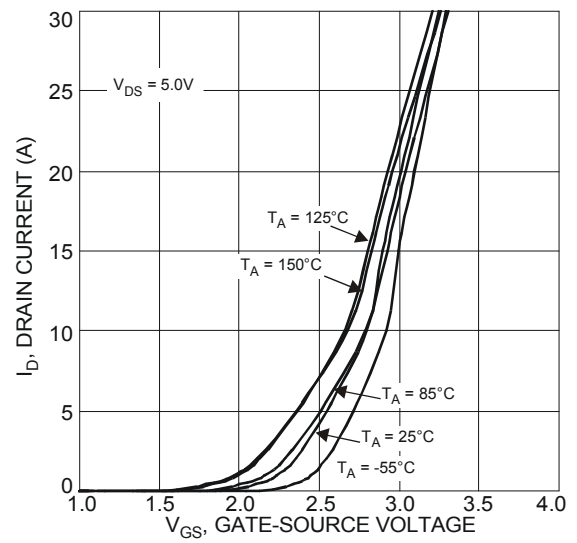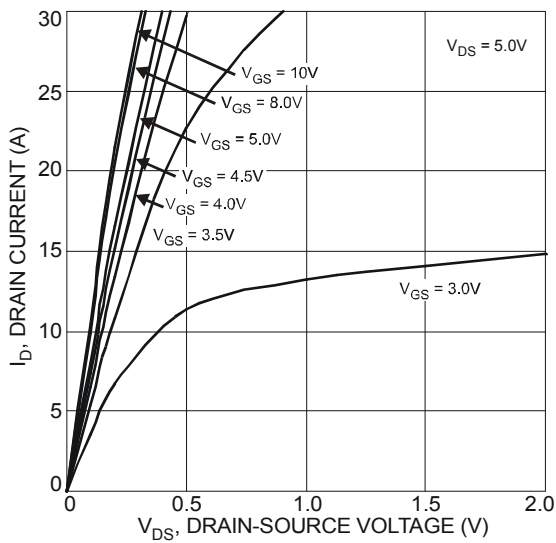
TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

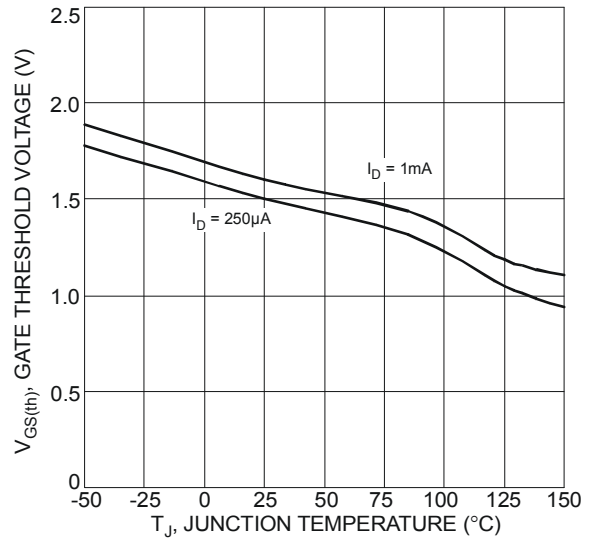Fig. 7 On-Resistance Variation with Temperature

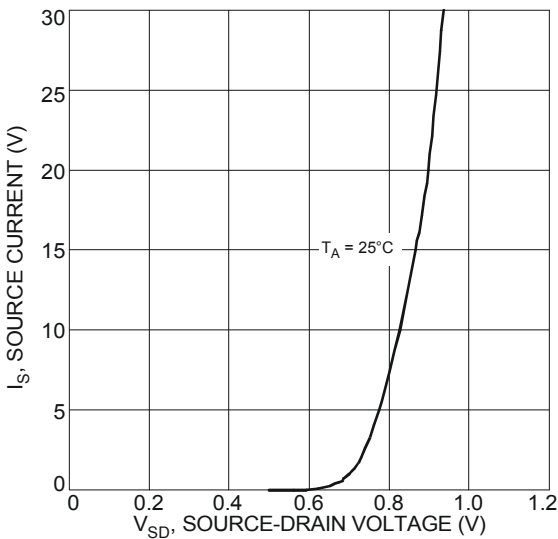Fig. 8 Gate Threshold Variation vs. Ambient Temperature
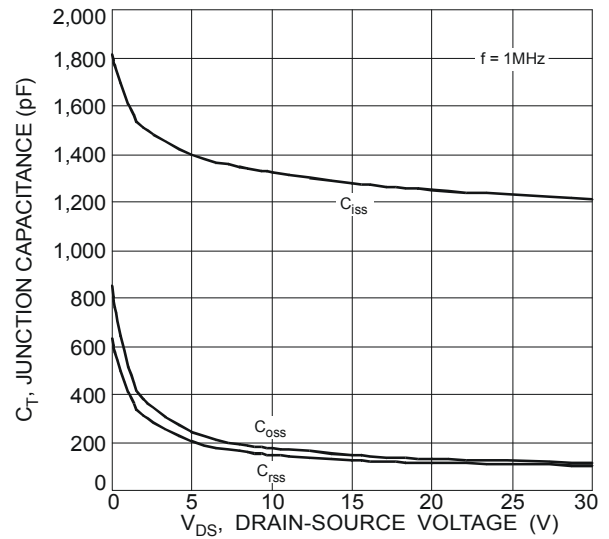
Fig.9 Diode Forward Voltage vs. Current

Fig.10 Typical Junction Capacitance
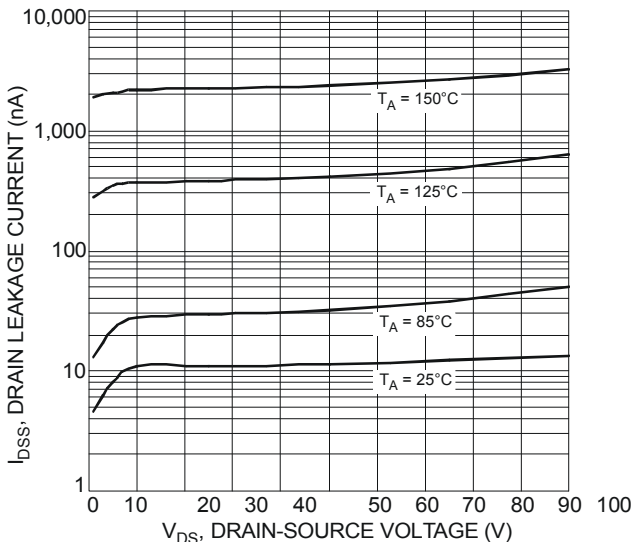
Fig. 11 Typical Drain-Source Leakage Current vs. Voltage

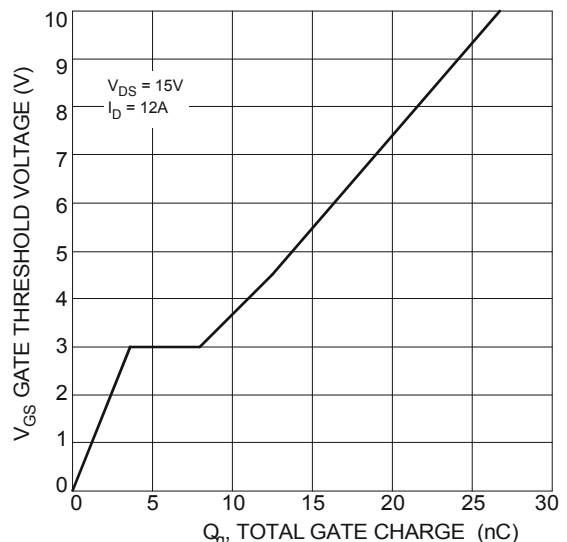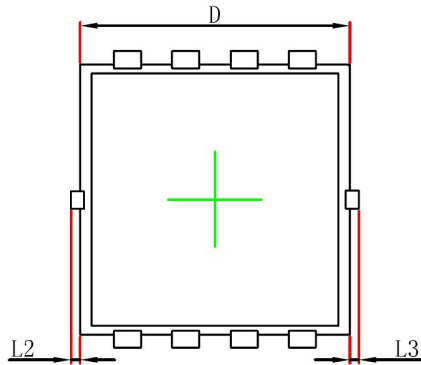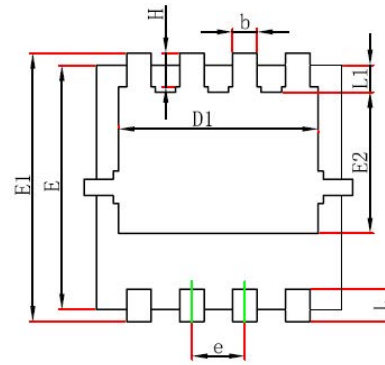Fig12 Gate Charge
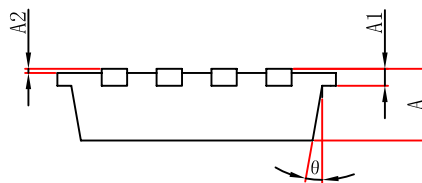
PDFN3.3*3.3-8L PACKAGE OUTLINE DRAWING

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	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°

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