JESTEK

JST4406

30V N-Channel Mosfet

FEATURES

- RDS(ON)≤ 12mΩ(9mΩ Typ.)@VGS=10V
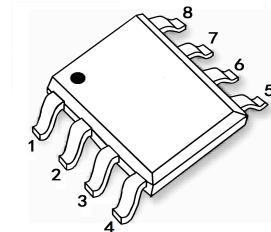- RDS(ON)≤ 15mΩ(11mΩ Typ.)@VGS=4.5V

APPLICATIONS

- UPS
- DC-DC Power Converter

MARKING
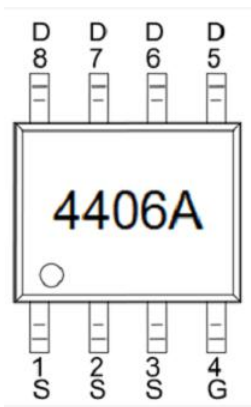
SOP-8

N-CHANNEL MOSFET
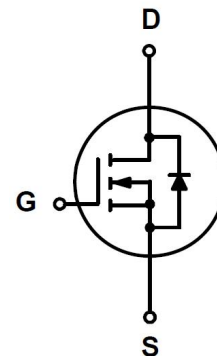
Maximum ratings (TC=25℃ unless otherwise noted)

Symbol	Param		Max.	Units
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	TC = 25℃	13	A
		TC = 100℃	8	
I_{DM}	Pulsed Drain Current		52	A
P_D	Power Dissipation	TA = 25℃	3.1	W
$R_{θJA}$	Thermal Resistance, Junction to Ambient		40	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	℃

Electrical Characteristics (TC=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V,ID=250µA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	VDS =30V, VGS=0V,	-	-	1.0	µA
I_{GSS}	Gate to Body Leakage Current	VDS =0V, VGS=±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	VDS= VGS, ID= 250µA	0.8	-	2.2	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	VGS =10V, ID=13A	-	9	12	mΩ
		VGS =4.5V, ID=10A	-	11	15	
g_{FS}	Forward Transconductance	VDS =5V, ID=13A	-	43	-	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	VDS =15V, VGS = 0V, f = 1.0MHz	-	1250	-	pF
C_{oss}	Output Capacitance		-	168	-	pF
C_{rss}	Reverse Transfer Capacitance		-	127	-	pF
Q_g	Total Gate Charge	VDS =30V, ID =13A, VGS =10V	-	23	-	nC
Q_{gs}	Gate-Source Charge		-	2.2	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	5.5	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	VDS =15V, ID =1A, RG=3Ω, VGS=4.5V	-	15	-	ns
t_r	Turn-on Rise Time		-	25	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	39	-	ns
t_f	Turn-off Fall Time		-	22	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	13	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	52	A
V_{SD}	Drain to Source Diode Forward Voltage	VGS=0V, IS=30A	-	0.8	1.3	V
t_{rr}	Reverse Recovery Time	IS=13A, di/dt=100A/µs	-	13	-	ns
Q_{rr}	Reverse Recovery Charge		-	1.6	-	nC

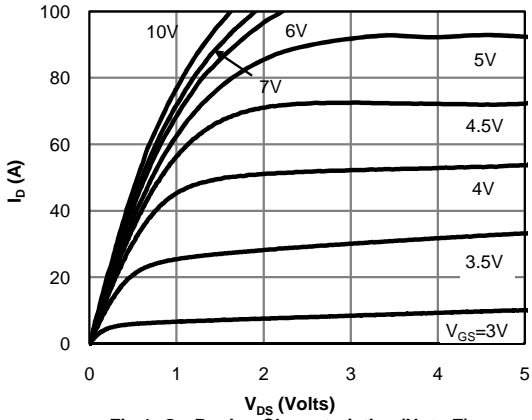## Typical Performance Characteristics
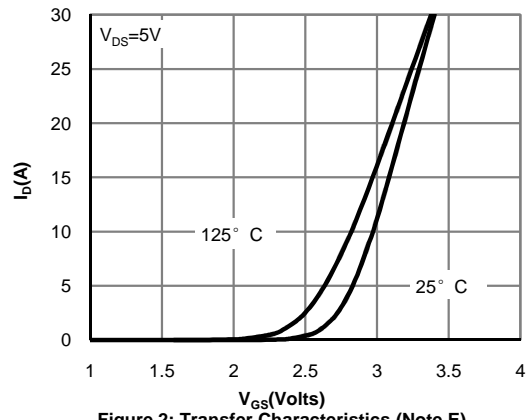

Fig 1: On-Region Characteristics (Note E)

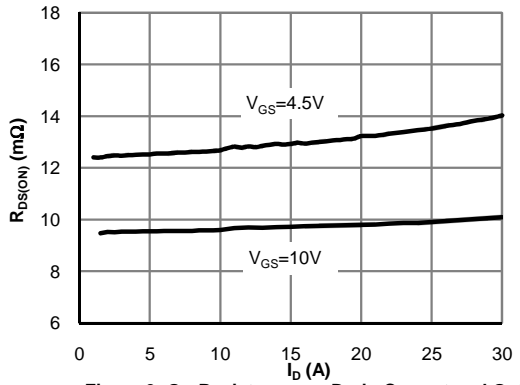Figure 2: Transfer Characteristics (Note E)

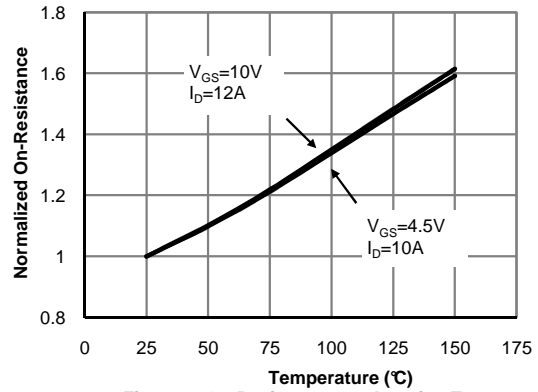Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

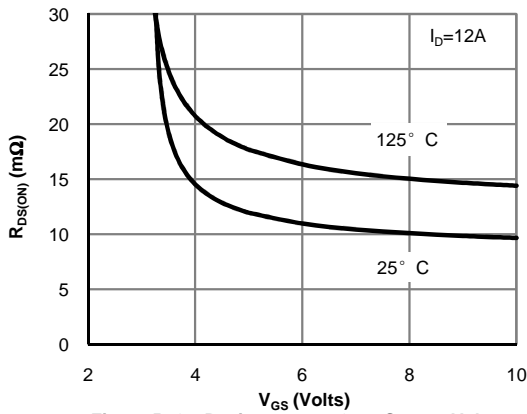Figure 4: On-Resistance vs. Junction Temperature (Note E)

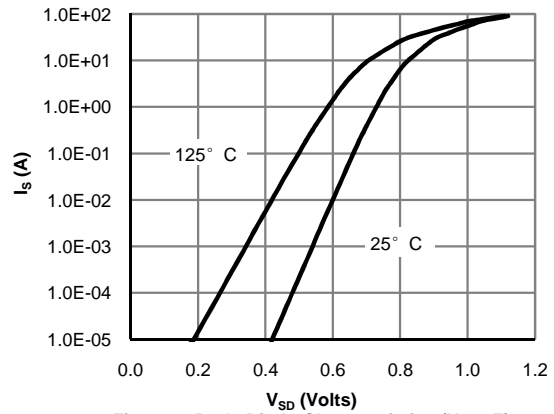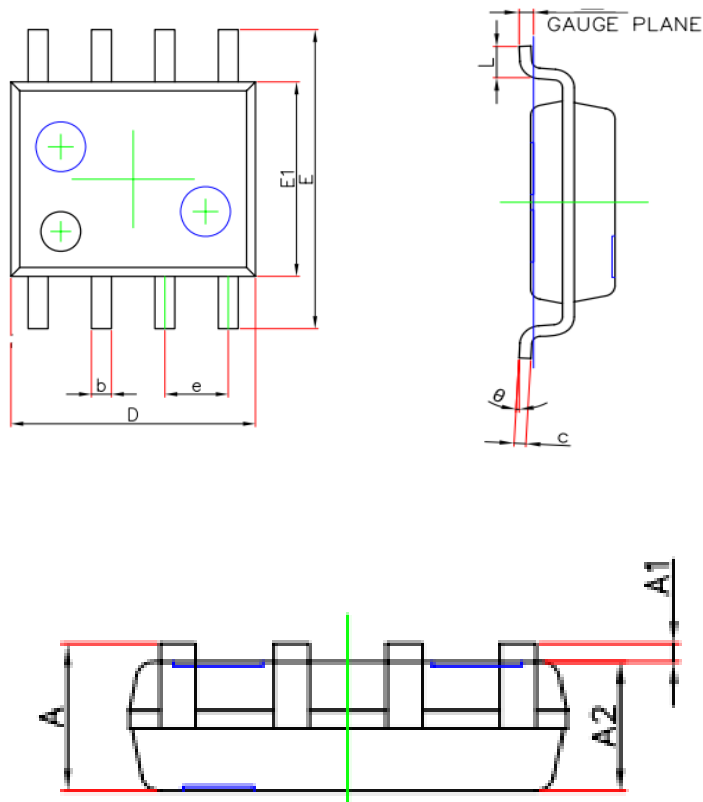Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

Figure 6: Body-Diode Characteristics (Note E)

SOP-8 PACKAGE OUTLINE DRAWING

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E1	3.800	4.000	0.150	0.157
E	5.800	6.200	0.228	0.244
e	1.27(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°