JST4435

-30V P-Channel Mosfet

FEATURES

RDS(ON)≤ 23m Ω @VGS=-10V

RDS(ON)≤34m Ω @VGS=-4.5V

APPLICATIONS

Load Switch

Power Management

MARKING

SOP-8

P-CHANNEL MOSFET

JST
4435
YYMM

YYMM:Date Code(year&month)

Absolute Maximum Ratings (T$_C$=25℃ unless otherwise specified)

Symbol	Param		Max.	Units
V$_{DSS}$	Drain-Source Voltage		-30	V
V$_{GSS}$	Gate-Source Voltage		±20	V
I$_D$	Continuous Drain Current	T$_C$ = 25℃	-10	A
		T$_C$ = 100℃	-8	A
I$_{DM}$	Pulsed Drain Current [note1]		-50	A
P$_D$	Power Dissipation	T$_A$ = 25℃	3.0	
R$_{θJA}$	Thermal Resistance, Junction to Ambient		42	℃/W
T$_J$, T$_{STG}$	Operating and Storage Temperature Range		-55 to +150	℃

JST4435

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Electrical Characteristics (T_C=25℃ unless otherwise specified)

Symbol	Param	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,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} =0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D= -250μA	-1.0	-1.5	-2.4	V
$R_{DS(on)}$ note2	Static Drain-Source on-Resistance	V_{GS} =-10V, I_D =-9.1A	-	16	23	mΩ
		V_{GS} =-4.5V, I_D =-7.0A	-	21	34	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz	-	1550	-	pF
C_{oss}	Output Capacitance		-	327	-	pF
C_{rss}	Reverse Transfer Capacitance		-	278	-	pF
Q_g	Total Gate Charge	V_{DS}= -15V, I_D = -9.1A, V_{GS} = -10V	-	30	-	nC
Q_{gs}	Gate-Source Charge		-	5.3	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	7.6	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD} = -15V, I_D = -6A, V_{GS}=-10V, R_{GEN}=2.5Ω	-	14	-	ns
t_r	Turn-on Rise Time		-	20	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	95	-	ns
t_f	Turn-off Fall Time		-	65	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-10	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-50	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = -10A	-	-0.8	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

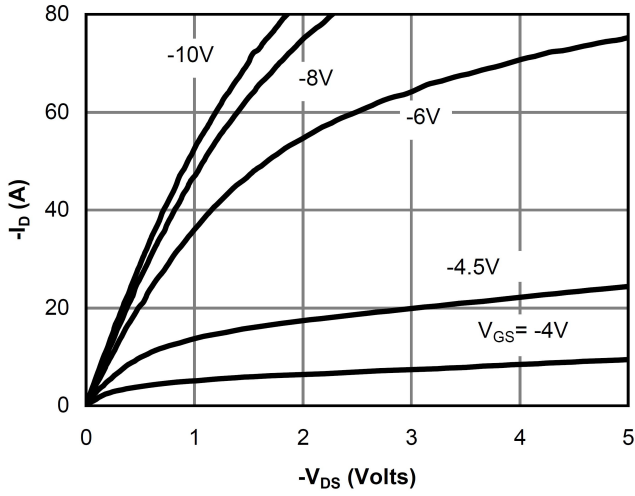**Typical Characteristics**

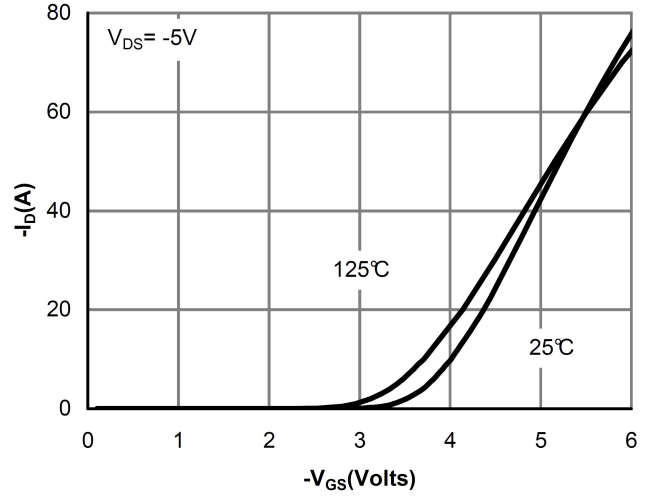Figure 1: On-Region Characteristics
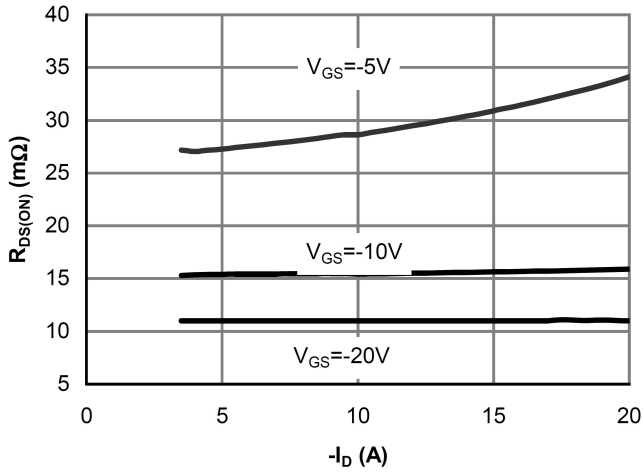

Figure 2: Transfer Characteristics

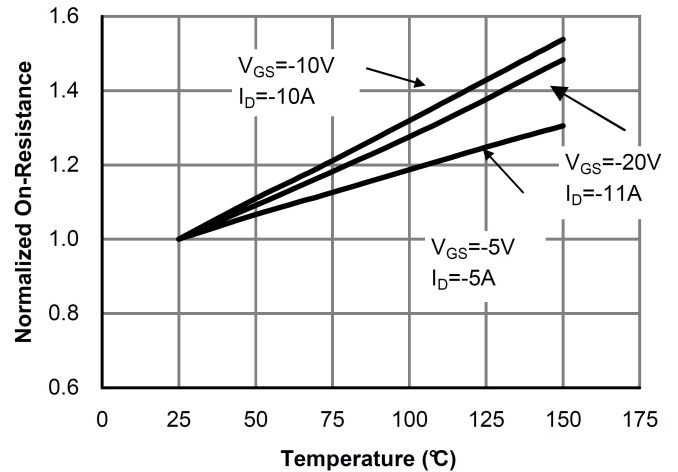Figure 3: On-Resistance vs. Drain Current and Gate Voltage

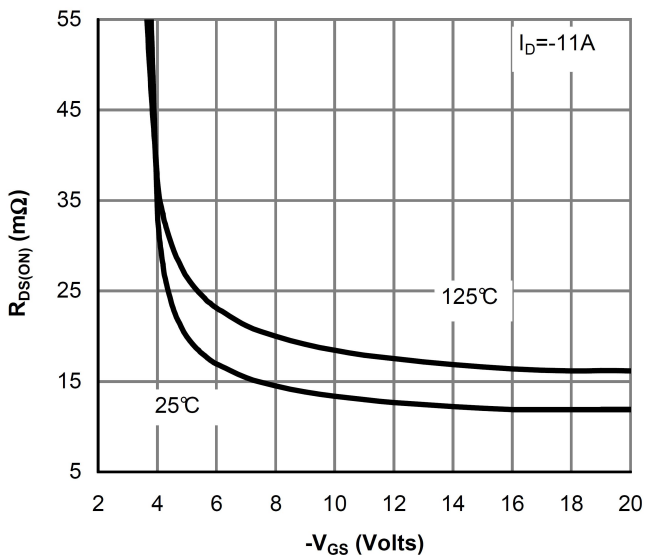Figure 4: On-Resistance vs. Junction Temperature
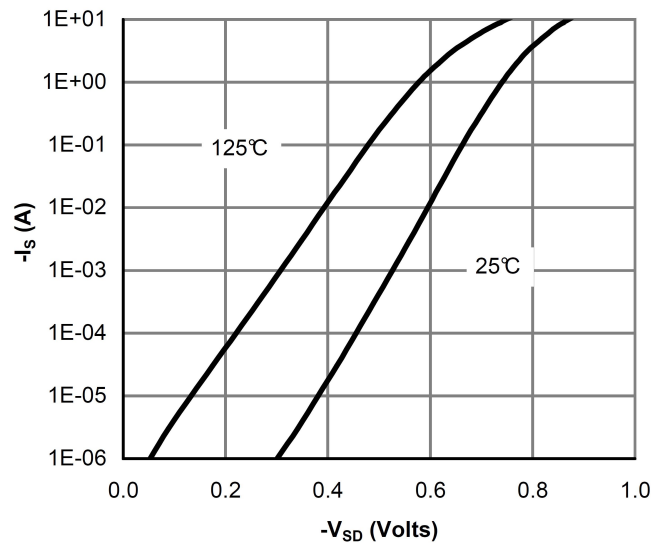

Figure 5: On-Resistance vs. Gate-Source Voltage
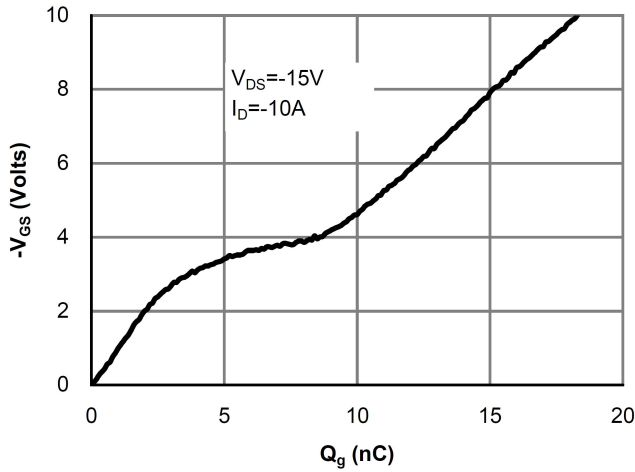

Figure 6: Body-Diode Characteristics
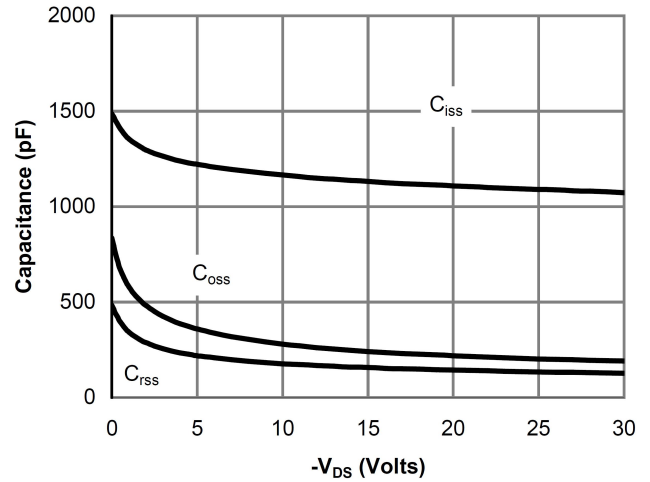
Figure 7: Gate-Charge Characteristics
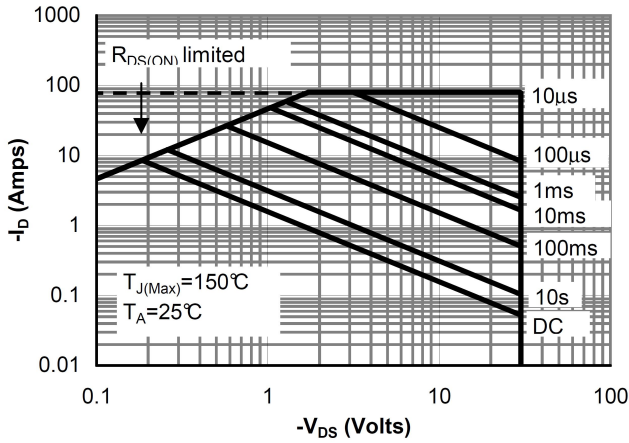
Figure 8: Capacitance Characteristics

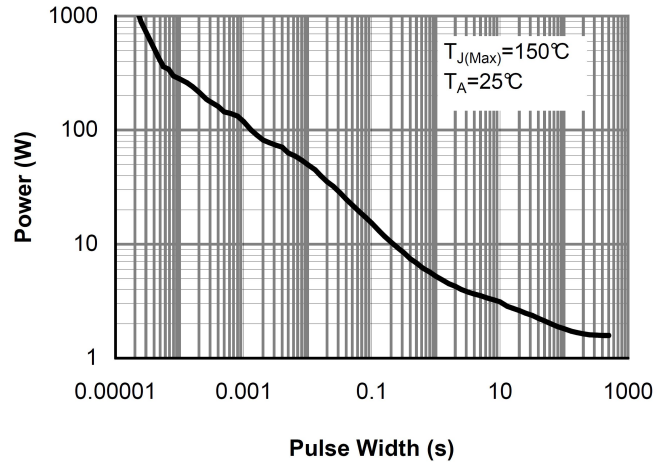Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

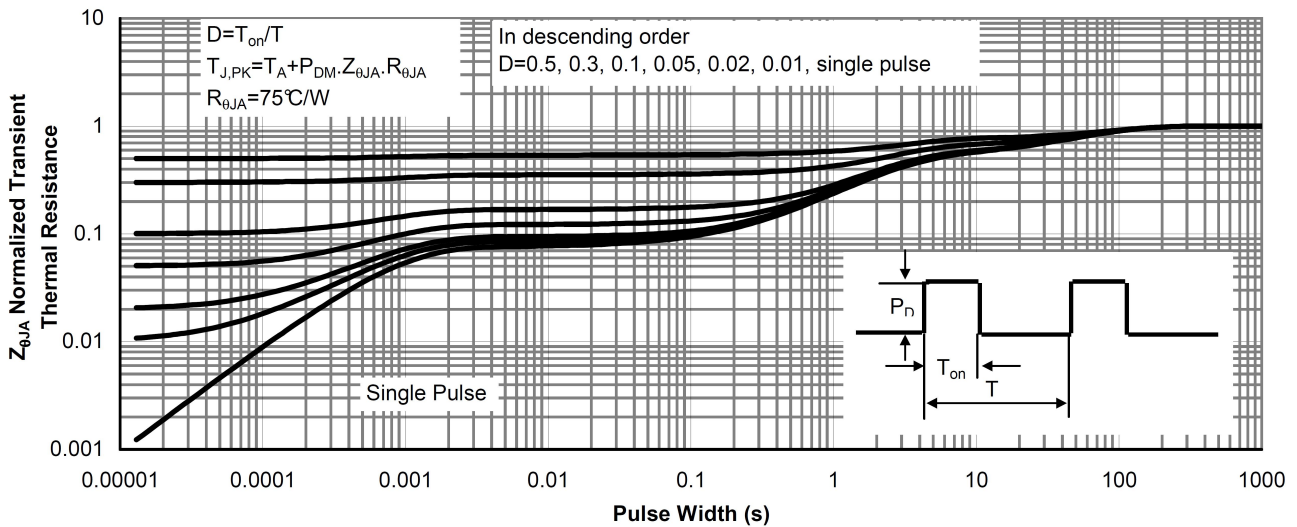Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

$D=T_{on}/T$
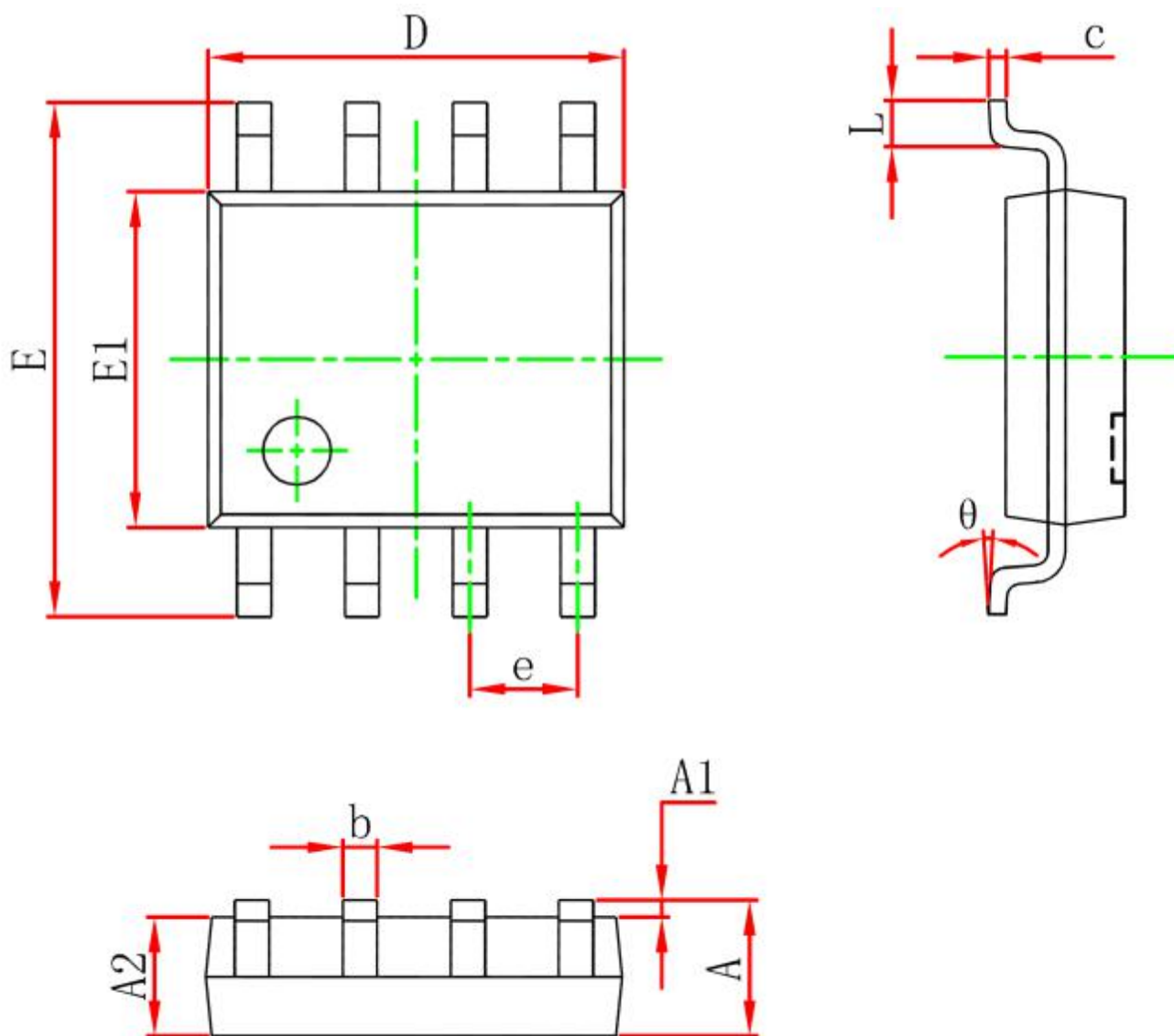$T_{J,PK}=T_A+P_{DM}.Z_{\theta JA}.R_{\theta JA}$
$R_{\theta JA}=75°C/W$

In descending order
D=0.5, 0.3, 0.1, 0.05, 0.02, 0.01, single pulse

Single Pulse

Figure 11: Normalized Maximum Transient Thermal Impedance(Note E)

SOP-8 Package Information

Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°

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