

-30V P-Channel Mosfet

FEATURES

$R_{DS(ON)} \leq 23m\ \Omega$ @VGS=-10V

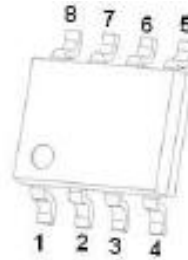
$R_{DS(ON)} \leq 34m\ \Omega$ @VGS=-4.5V

APPLICATIONS

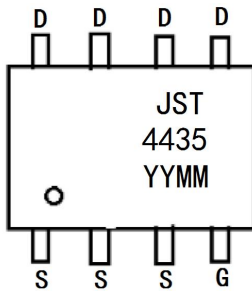
Load Switch

Power Management

SOP-8

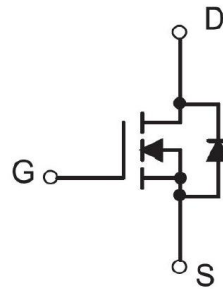


MARKING



YYMM:Date Code(year&month)

P-CHANNEL MOSFET



Absolute Maximum Ratings (T_C=25°C 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°C	-10
		T _C = 100°C	-8
I _{DM}	Pulsed Drain Current ^{note1}	-50	A
P _D	Power Dissipation	T _A = 25°C	3.0
R _{θJA}	Thermal Resistance, Junction to Ambient	42	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C

Electrical Characteristics ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Param	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D = -250\mu A$	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V,$	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.5	-2.4	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS} = -10V, I_D = -9.1A$	-	16	23	m Ω
		$V_{GS} = -4.5V, I_D = -7.0A$	-	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	$V_{DD} = -15V, I_D = -6A,$ $V_{GS} = -10V, R_{GEN} = 2.5\Omega$	-	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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Characteristics

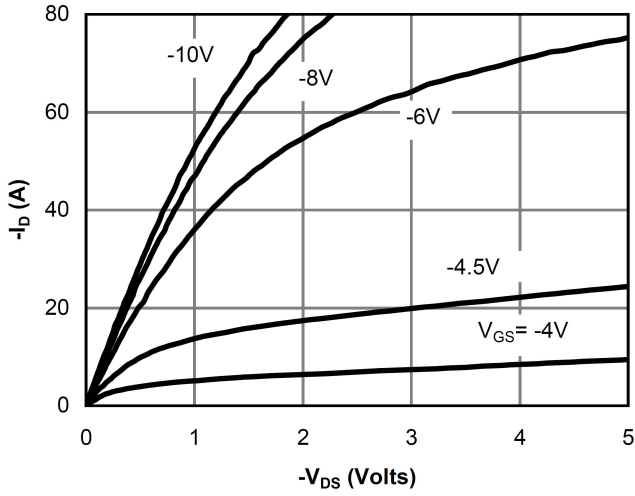


Figure 1: On-Region Characteristics

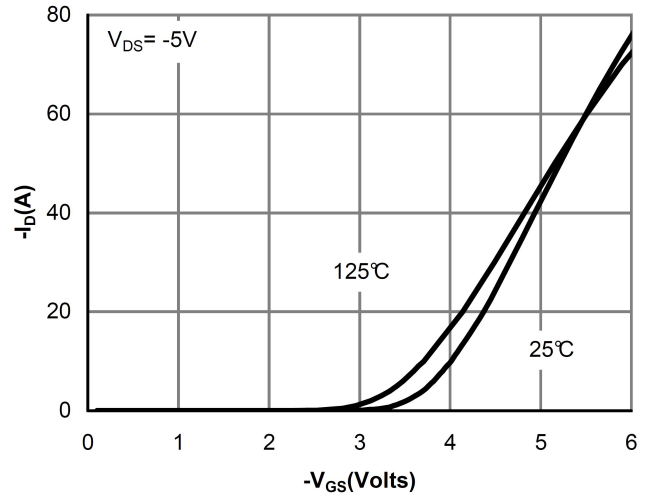


Figure 2: Transfer Characteristics

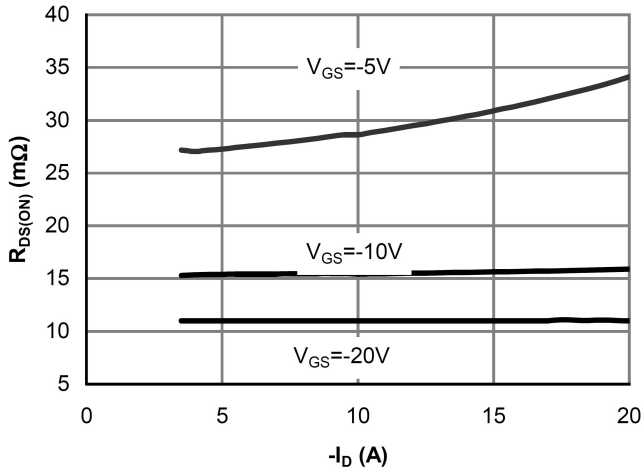


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

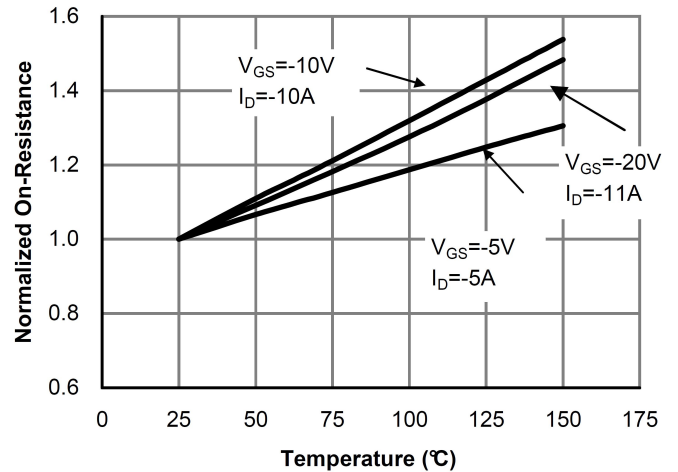


Figure 4: On-Resistance vs. Junction Temperature

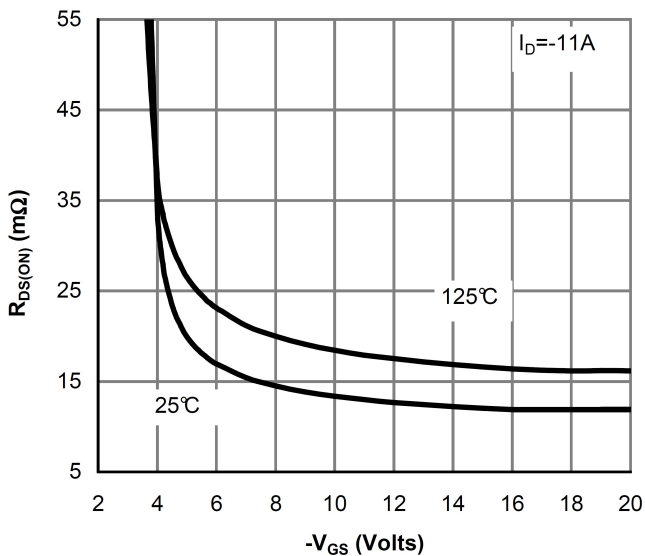


Figure 5: On-Resistance vs. Gate-Source Voltage

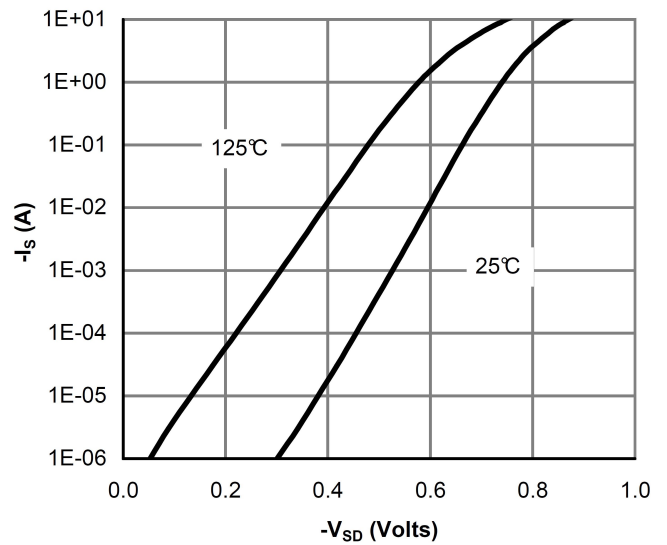


Figure 6: Body-Diode Characteristics

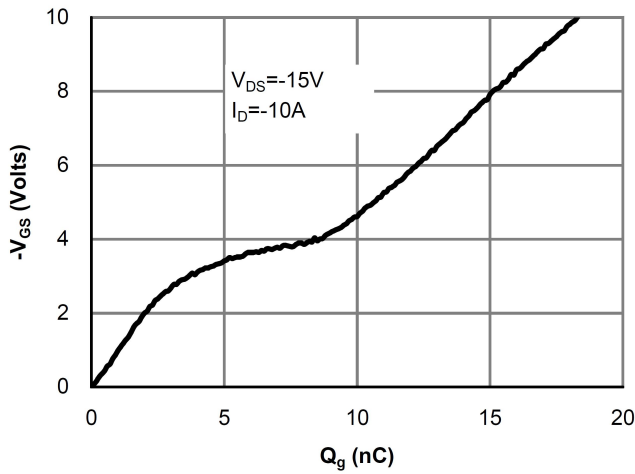


Figure 7: Gate-Charge Characteristics

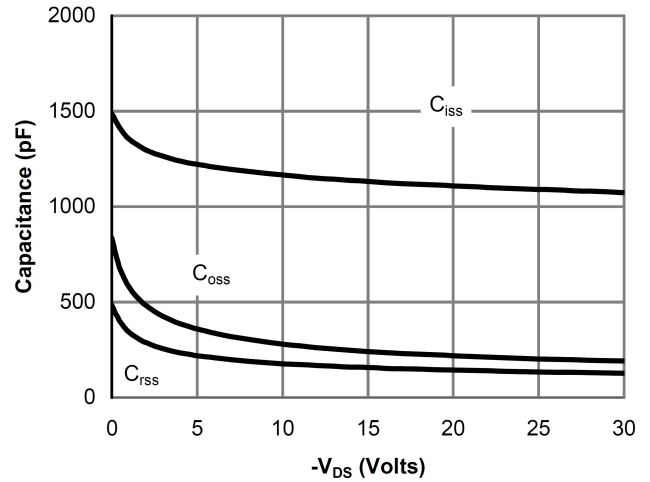


Figure 8: Capacitance Characteristics

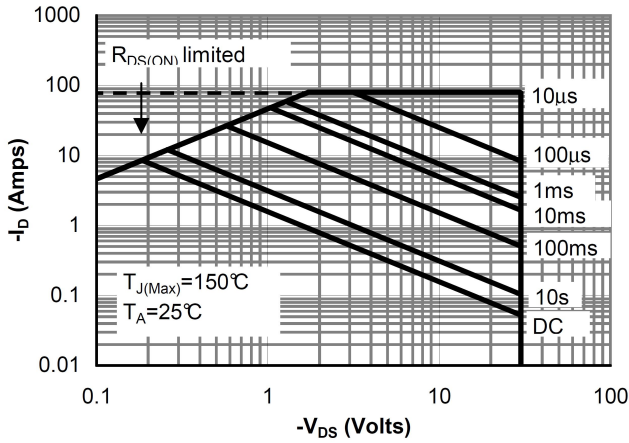


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

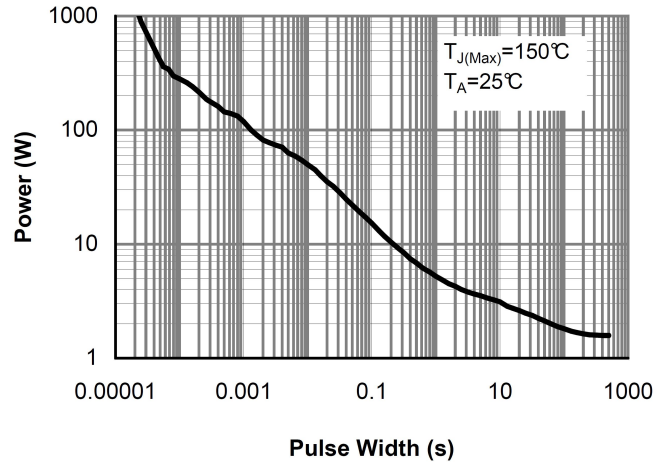


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

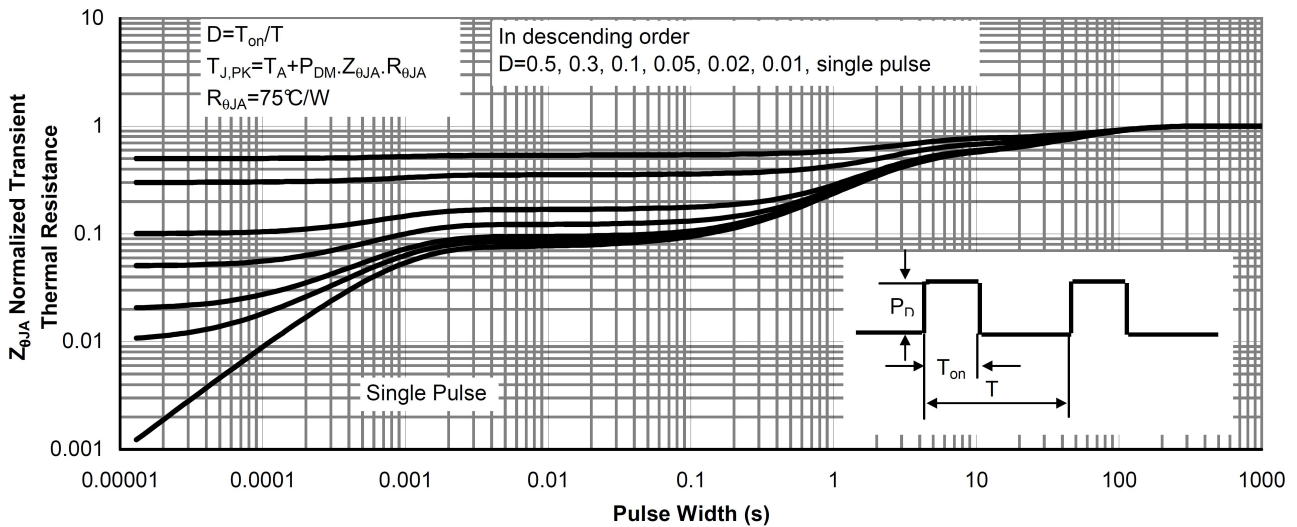
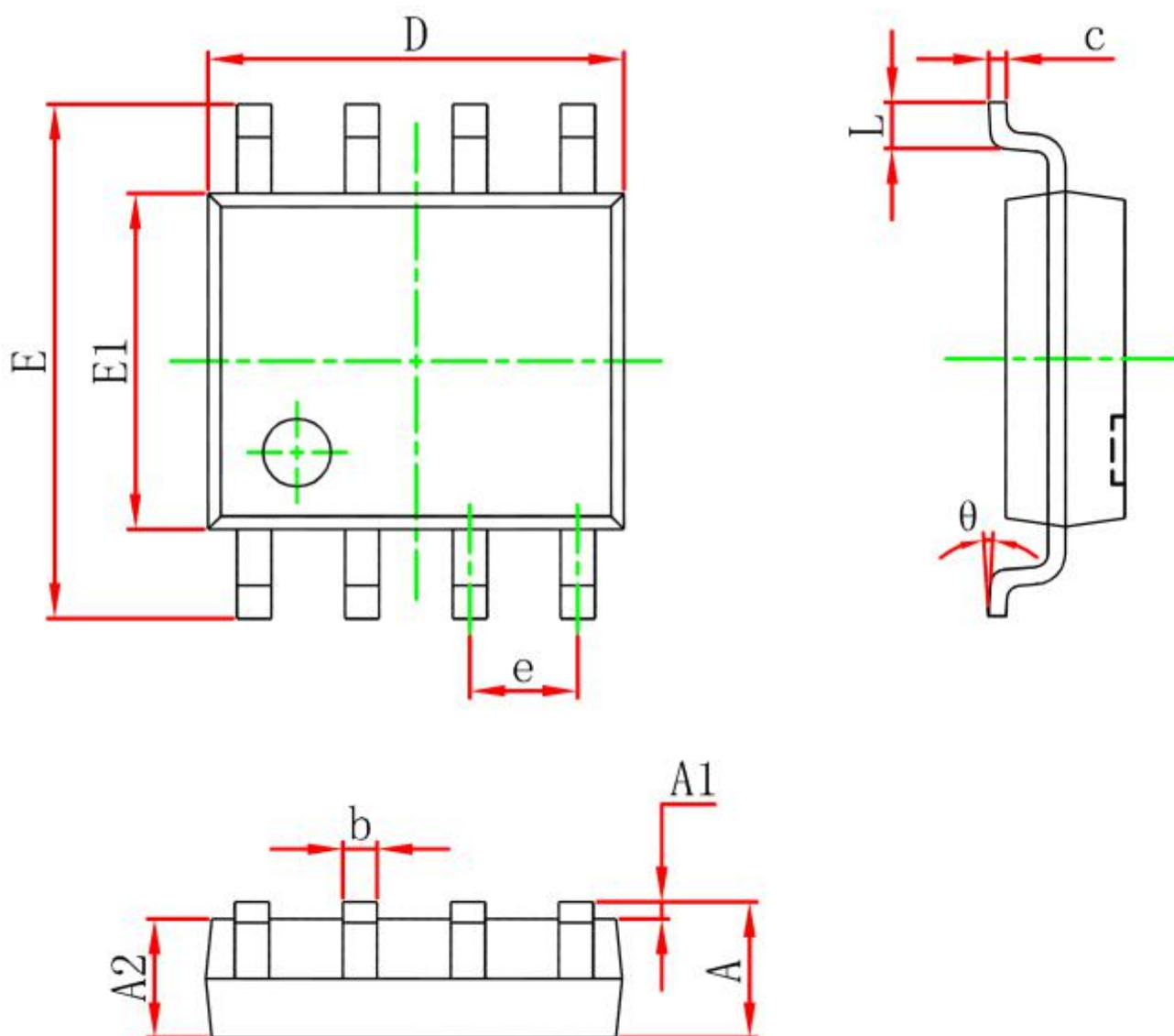


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

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°