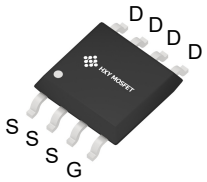
Description

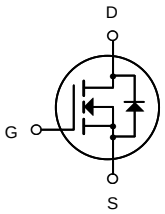
The HXY4480S uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.



SOP-8

General Features

V_{DS} = 40V I_D =14 A
$R_{DS(ON)}$ < 18mΩ @ V_{GS}=10V
$R_{DS(ON)}$ < 24mΩ @ V_{GS}=4.5V



N-Channel MOSFET

Application

Battery protection
Load switch
Uninterruptible power supply

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
HXY4480S	SOP-8	4480 XXXX	3000

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current-Continuous	14	A
I_D (70℃)	Drain Current-Continuous(T_C=70℃)	10	A
I_{DM}	Pulsed Drain Current	70	A
P_D	Maximum Power Dissipation	3.1	W
E_{AS}	Single pulse avalanche energy (Note 5)	135	mJ
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V			1	uA
		V_{DS}=32V, V_{GS}=0V, T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250uA	1		3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=14A		14	18	mΩ
		V_{GS}=10V, I_D=14A T_J=125℃		18	24	
		V_{GS}=4.5V, I_D=5A			16.5	
On State Drain Current	$I_{D(ON)}$	V_{GS}=10V, V_{DS}=5V	70			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=5A	50			S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=20V, f=1MHz		1600	1920	pF
Output Capacitance	C_{oss}			320		
Reverse Transfer Capacitance	C_{rss}			100		
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		3.4		Ω
Total Gate Charge (10V)	Q_g	V_{GS}=10V, V_{DS}=20V, I_D=14A		22		nC
Total Gate Charge (4.5V)				10.5		
Gate Source Charge	Q_{gs}			4.2		
Gate Drain Charge	Q_{gd}			4.8		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=20V, R_L=1.5Ω, R_{GEN}=3Ω		3.5		ns
Turn-On Rise Time	t_r			6		
Turn-Off DelayTime	$t_{d(off)}$			13.2		
Turn-Off Fall Time	t_f			3.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 14A, dI/dt= 100A/us		31		
Body Diode Reverse Recovery Charge	Q_{rr}			33		nC
Maximum Body-Diode Continuous Current	I_S				4	A
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1	V

Note : The static characteristics in Figures 1 to 6 are obtained using <300 us pulses, duty cycle 0.5% max.

Typical Characterisitics

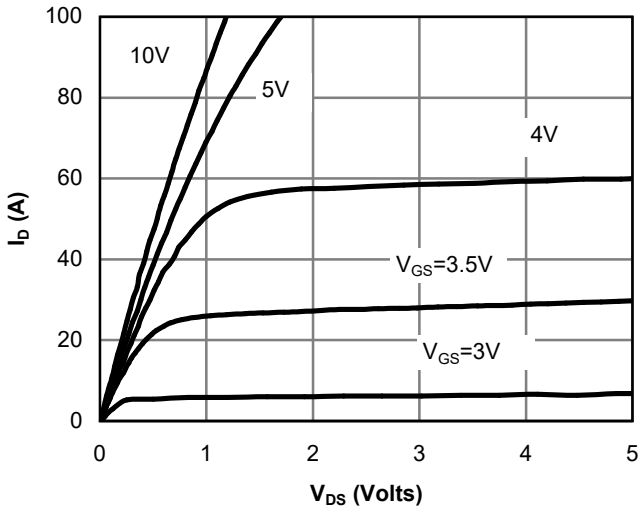


Figure 1: On-Region Characteristics

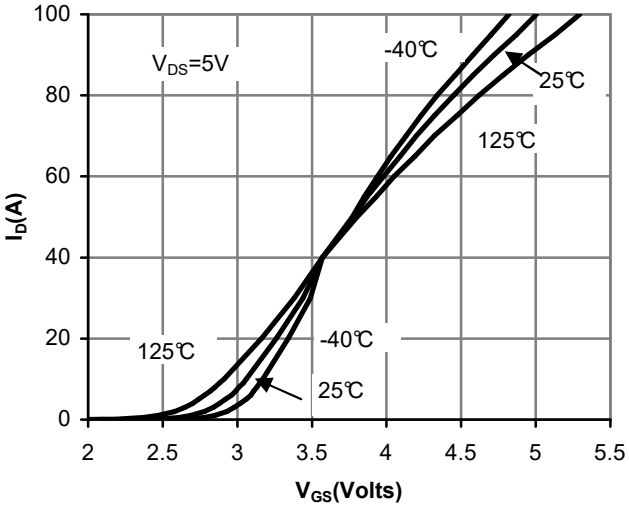


Figure 2: Transfer Characteristics

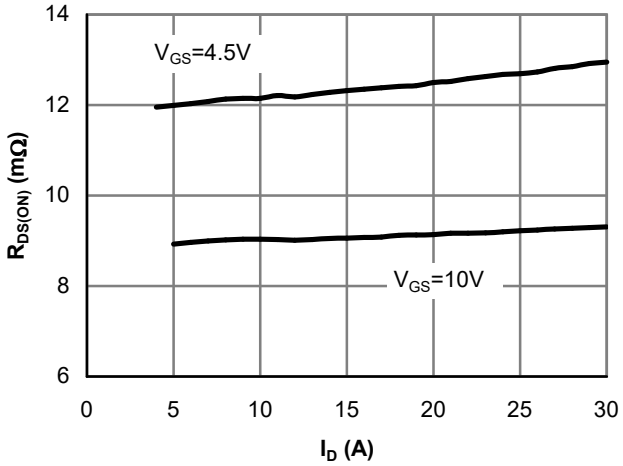


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

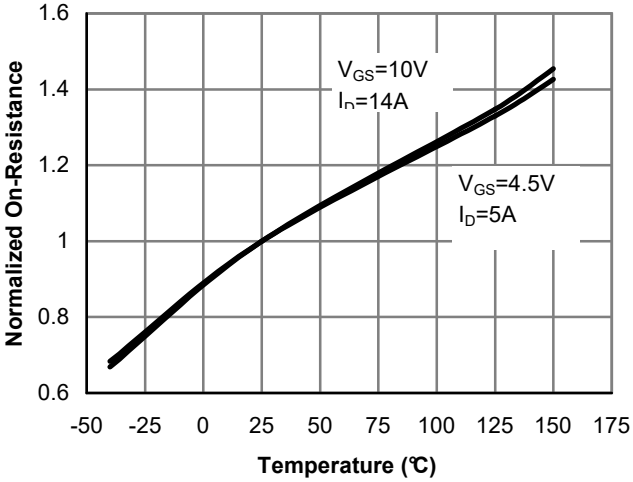


Figure 4: On-Resistance vs. Junction Temperature

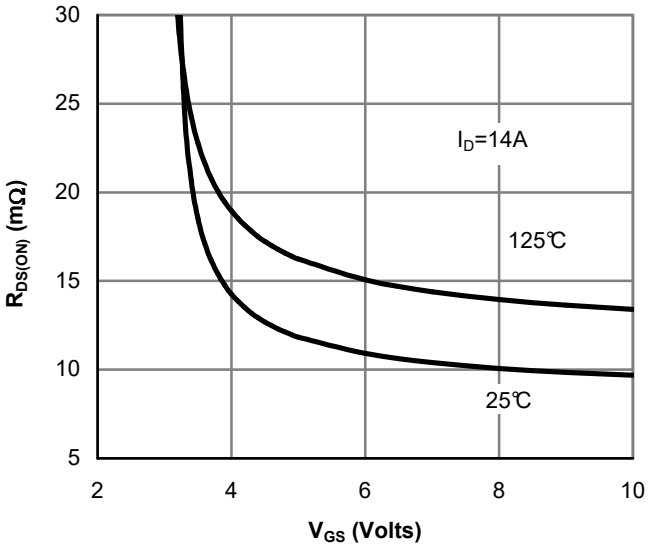


Figure 5: On-Resistance vs. Gate-Source Voltage

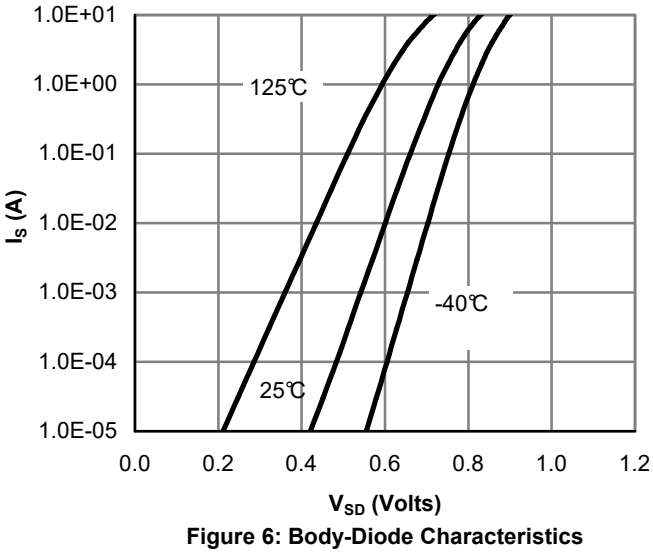


Figure 6: Body-Diode Characteristics

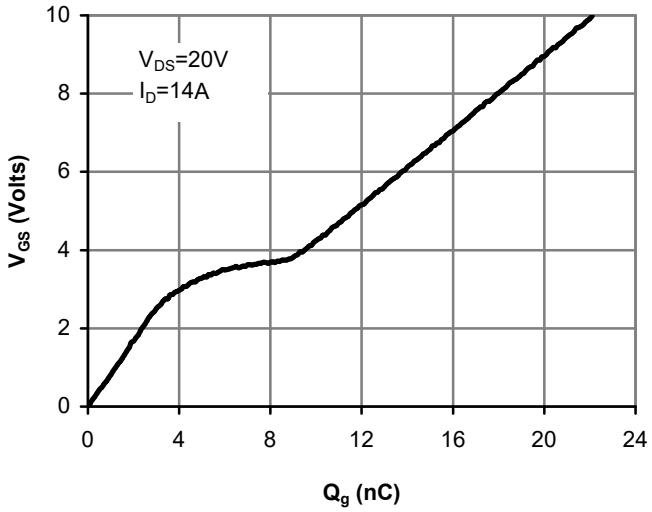


Figure 7: Gate-Charge Characteristics

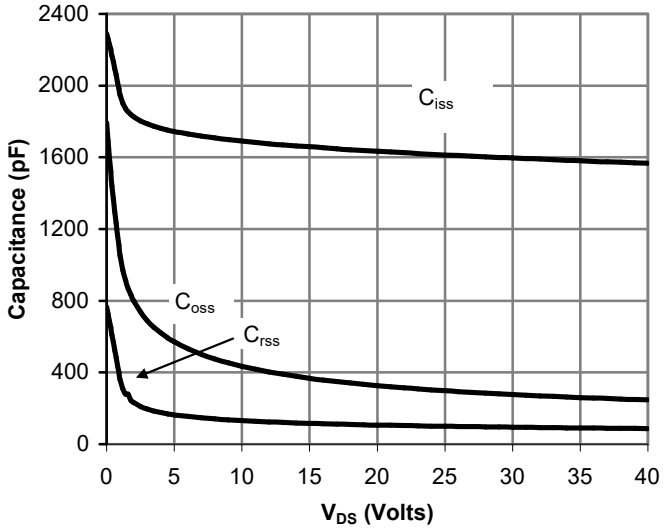


Figure 8: Capacitance Characteristics

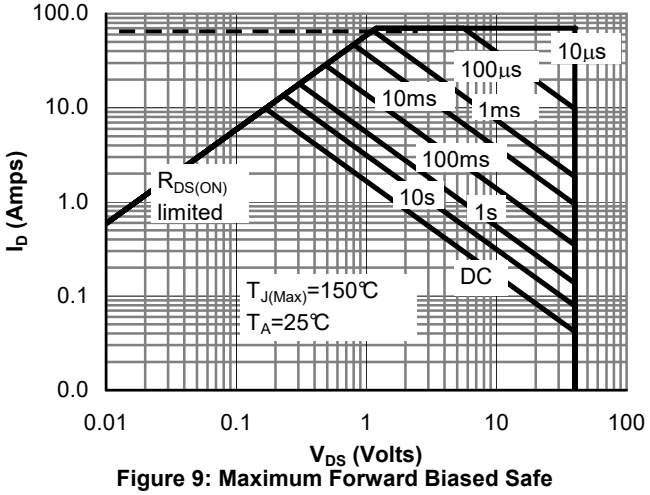


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

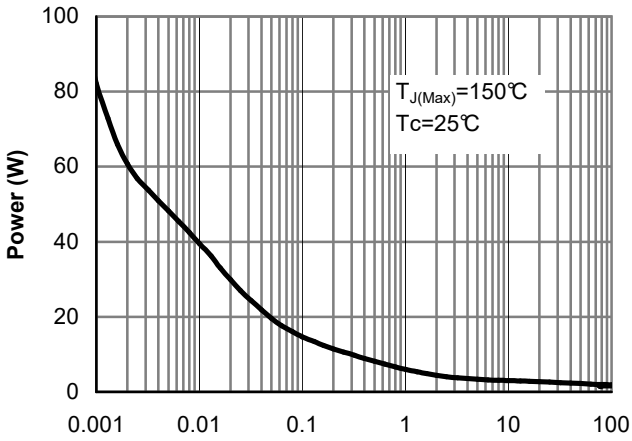


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

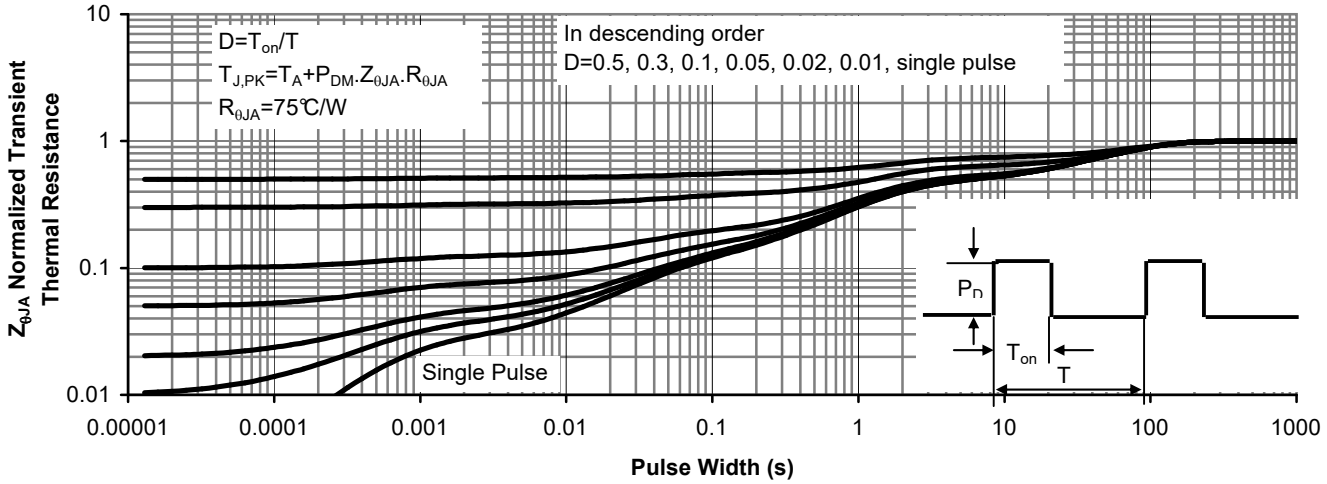
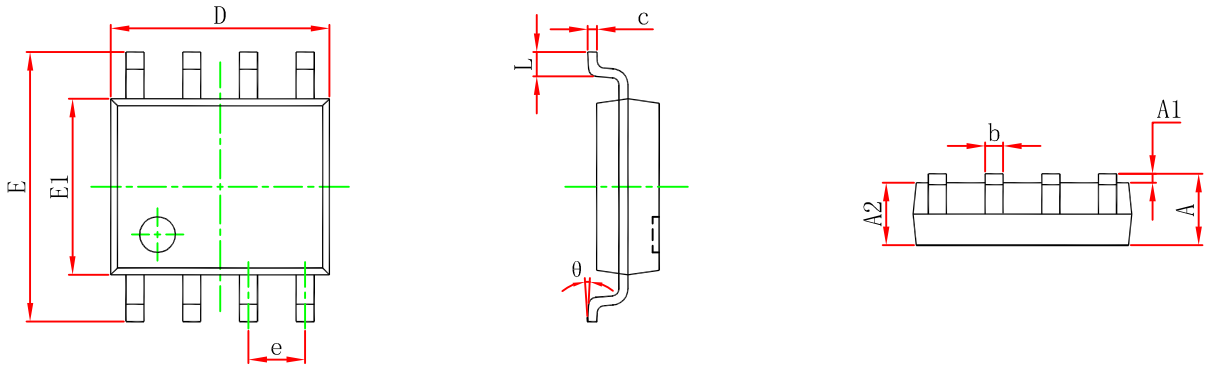
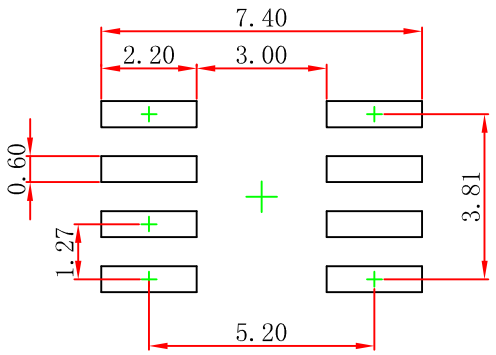


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

SOP-8 Package Outline Dimensions



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	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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