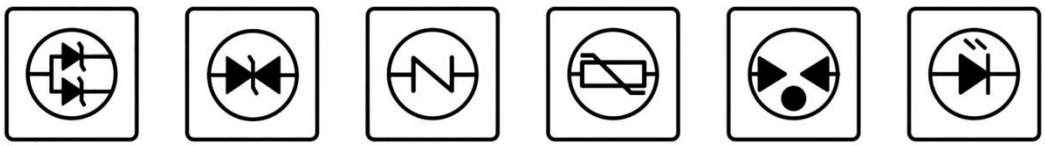
MSKSEMI
SEMICONDUCTOR



Product data sheet

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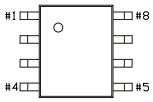
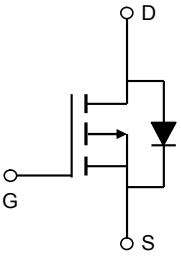
SOP-8



1 Source	5 Drain
2 Source	6 Drain
3 Source	7 Drain
4 Gate	8 Drain



Features

- $V_{DS\ (V)}$ =-30V
- I_D =-6 A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 48mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 57mΩ (V_{GS} =-4.5V)
- $R_{DS(ON)}$ < 80mΩ (V_{GS} =-2.5V)

Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current	T_A=25°C	I_D	-6	A
	T_A=70°C		-5	
Pulsed Drain Current		I_{DM}	-30	
Avalanche Current		I_{AS},I_{AR}	18	
Avalanche energy	L=0.1mH	E_{AS},E_{AR}	16	mJ
Power Dissipation	T_A=25°C	P_D	3.1	W
	T_A=70°C		2	
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Lead		R_{thJL}	24	
Junction Temperature		T_J	150	℃
Junction Storage Temperature Range		T_{stg}	-55 to 150	

Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	uA
		V_{DS}=-30V, V_{GS}=0V, T_J=55℃			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±12V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-0.5		-1.3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-6A			48	mΩ
		V_{GS}=-10V, I_D=-6A T_J=125℃			72	
		V_{GS}=-4.5V, I_D=-4A			57	
		V_{GS}=-2.5V, I_D=-2A			80	
On state drain current	$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-30			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-6A		19		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		645	780	pF
Output Capacitance	C_{oss}			80		
Reverse Transfer Capacitance	C_{rss}			55		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	4		12	Ω
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-15V, I_D=-6A		7		nC
Gate Source Charge	Q_{gs}			1.5		
Gate Drain Charge	Q_{gd}			2.5		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=2.5Ω, R_{GEN}=6Ω		6.5		ns
Turn-On Rise Time	t_r			3.5		
Turn-Off DelayTime	$t_{d(off)}$			41		
Turn-Off Fall Time	t_f			9		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-6A, dI/dt=100A/us		11		
Body Diode Reverse Recovery Charge	Q_{rr}			3.5		nC
Maximum Body-Diode Continuous Current	I_S				-3.5	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 μs pulses, duty cycle 0.5% max.

Typical Characterisitics

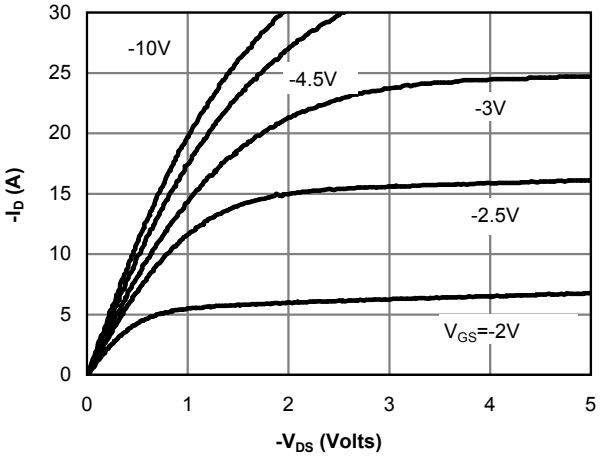


Fig 1: On-Region Characteristics (Note E)

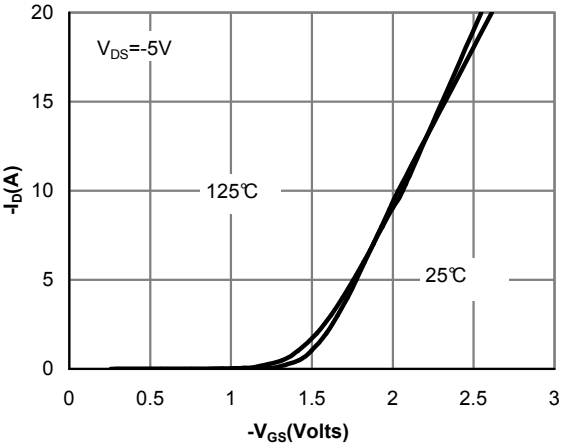


Figure 2: Transfer Characteristics (Note E)

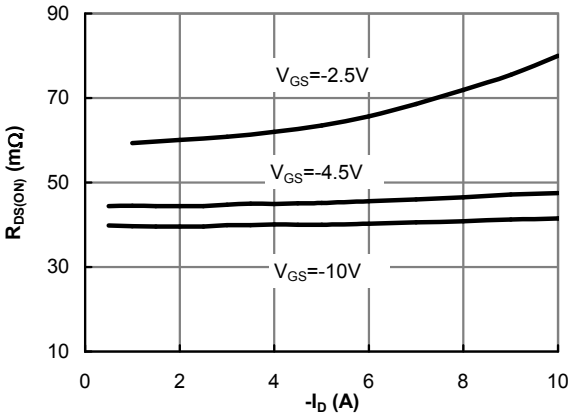


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

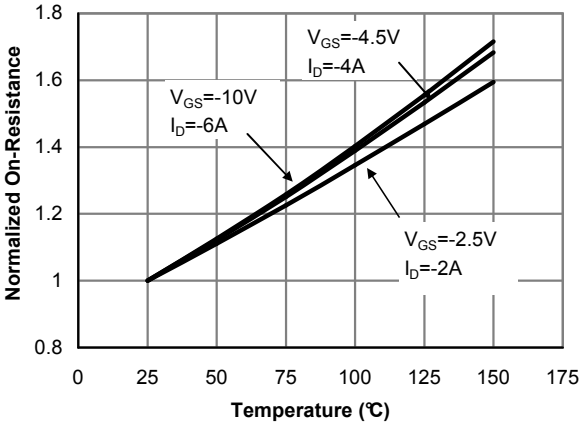


Figure 4: On-Resistance vs. Junction Temperature

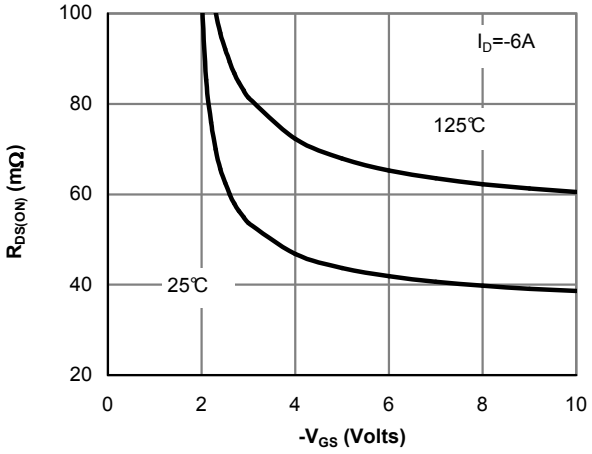


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

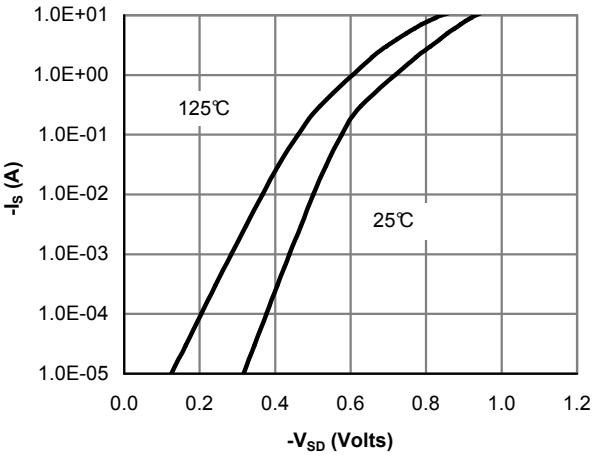


Figure 6: Body-Diode Characteristics (Note E)

Typical Characterisitics

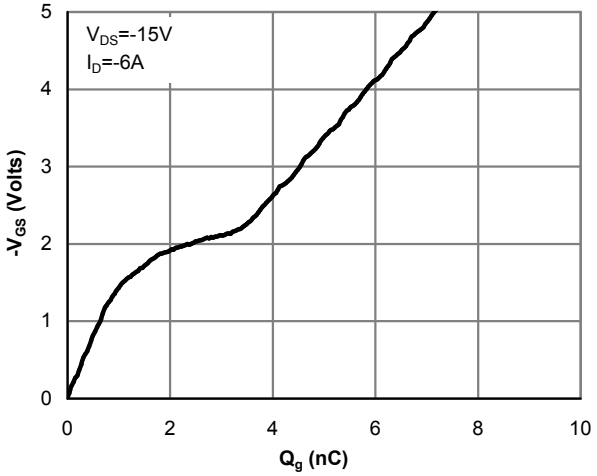


Figure 7: Gate-Charge Characteristics

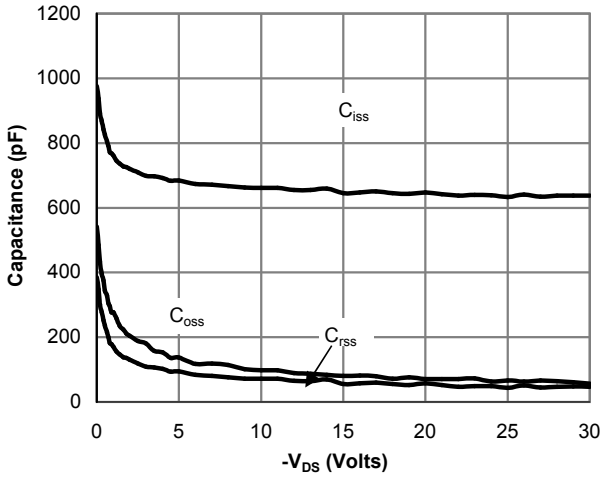


Figure 8: Capacitance Characteristics

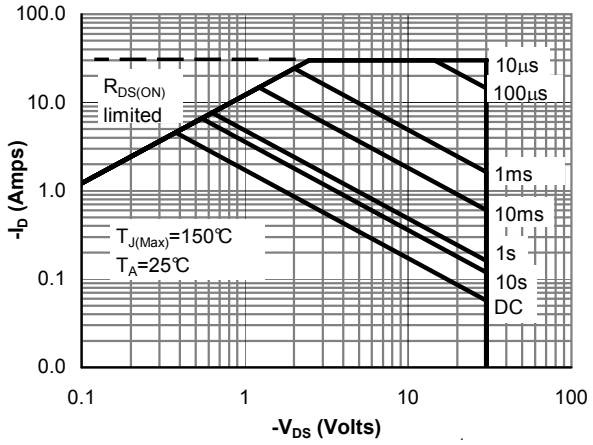


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

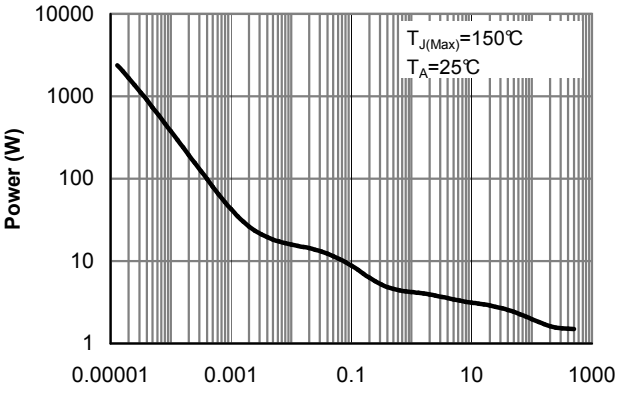


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

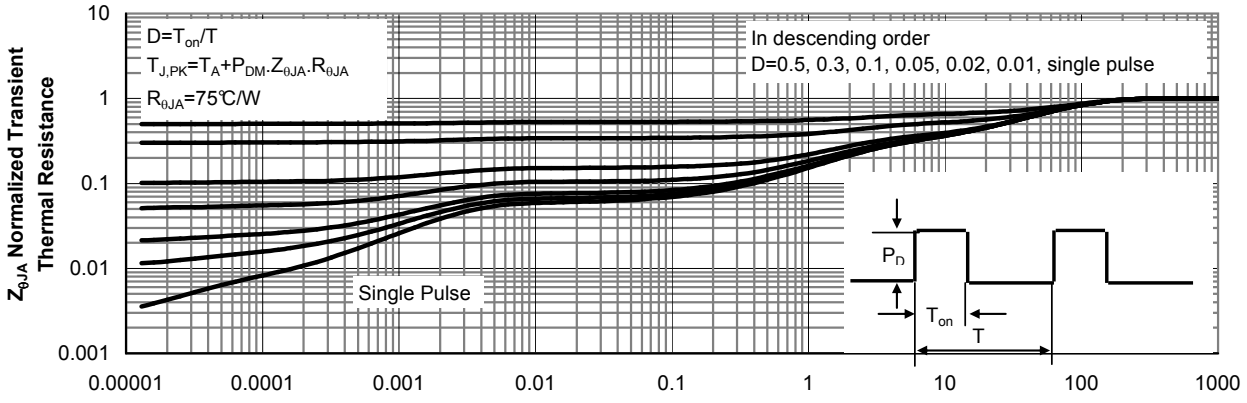
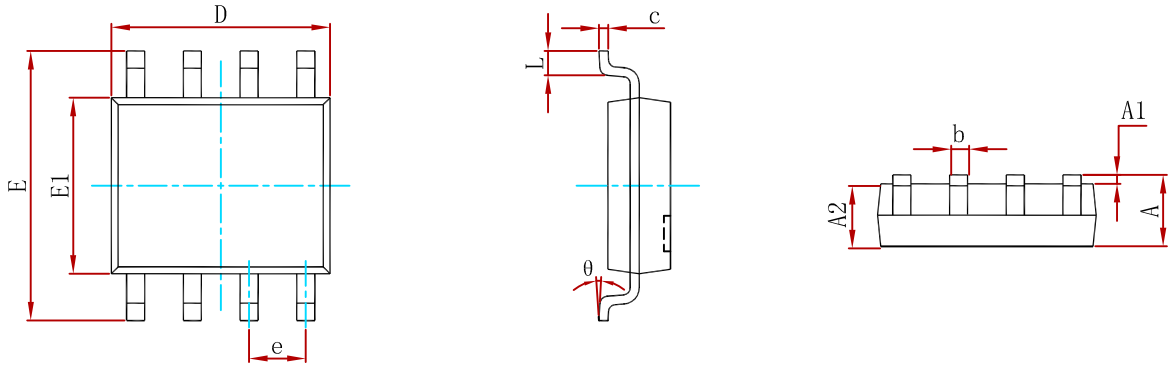


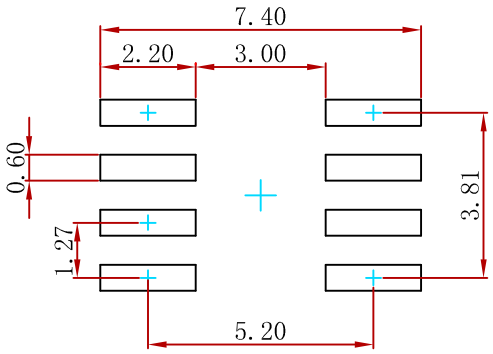
Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

PACKAGE MECHANICAL DATA



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°

Suggested Pad Layout



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

REEL SPECIFICATION

P/N	PKG	QTY
AO4403-MS	SOP-8	3000

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