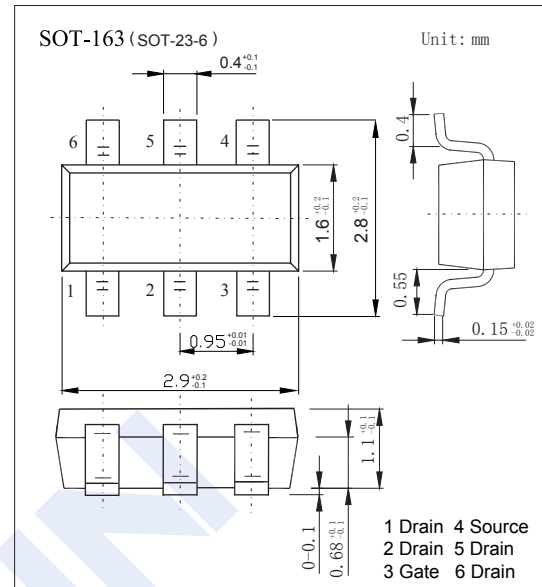
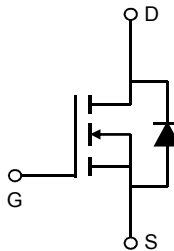


## N-Channel MOSFET

### AO6424 (KO6424)

#### ■ Features

- $V_{DS} = 30V$
- $I_D = 5 A$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 31m\Omega$  ( $V_{GS} = 10V$ )
- $R_{DS(ON)} < 43m\Omega$  ( $V_{GS} = 4.5V$ )



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	$T_A = 25^\circ C$	5
		$T_A = 70^\circ C$	4
Pulsed Drain Current	$I_{DM}$	20	A
Power Dissipation	$P_D$	$T_A = 25^\circ C$	1.25
		$T_A = 70^\circ C$	0.8
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	$t \leq 10s$	100
		Steady-State	130
Thermal Resistance.Junction- to-Lead	$R_{thJL}$	70	$^\circ C/W$
Junction Temperature	$T_J$	150	
Storage Temperature Range	$T_{stg}$	-55 to 150	$^\circ C$

## N-Channel MOSFET

## AO6424 (KO6424)

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μA, V <sub>GS</sub> =0V	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>D</sub> =30V, V <sub>GS</sub> =0V			1	μA
		V <sub>D</sub> =30V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			5	
Gate-Body Leakage Current	I <sub>GBSS</sub>	V <sub>D</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>D</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1.2		2.4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5A			31	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =5A, T <sub>J</sub> =125°C			50	
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A			43	
On State Drain Current	I <sub>D(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =5V	20			A
Forward Transconductance	g <sub>FS</sub>	V <sub>D</sub> =5V, I <sub>D</sub> =5A		15		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>D</sub> =15V, f=1MHz		255	310	pF
Output Capacitance	C <sub>oss</sub>			45		
Reverse Transfer Capacitance	C <sub>rss</sub>			35	50	
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>D</sub> =0V, f=1MHz	1.6		4.9	Ω
Total Gate Charge (10V)	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>D</sub> =15V, I <sub>D</sub> =5A		5.2	6.3	nC
Total Gate Charge (4.5V)				2.55	3.2	
Gate Source Charge	Q <sub>gs</sub>			0.85		
Gate Drain Charge	Q <sub>gd</sub>			1.3		
Turn-On DelayTime	t <sub>d(on)</sub>		V <sub>GS</sub> =10V, V <sub>D</sub> =15V, R <sub>L</sub> =3 Ω, R <sub>G</sub> =3 Ω		4.5	
Turn-On Rise Time	t <sub>r</sub>			2.5		
Turn-Off DelayTime	t <sub>d(off)</sub>			14.5		
Turn-Off Fall Time	t <sub>f</sub>			3.5		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 5A, di/dt= 100A/μs		8.5		ns
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			2.2		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				1.5	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V			1	V

\* The static characteristics in Figures 1 to 6 are obtained using <300μs pulses, duty cycle 0.5% max.

## ■ Marking

Marking	DT**
---------	------

## N-Channel MOSFET AO6424 (KO6424)

■ Typical Characteristics

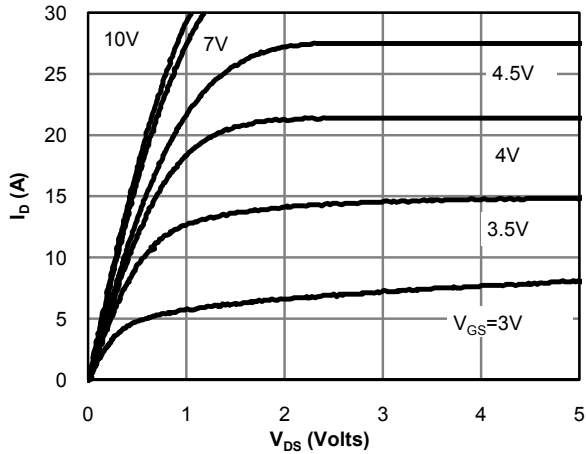


Fig 1: On-Region Characteristics (Note E)

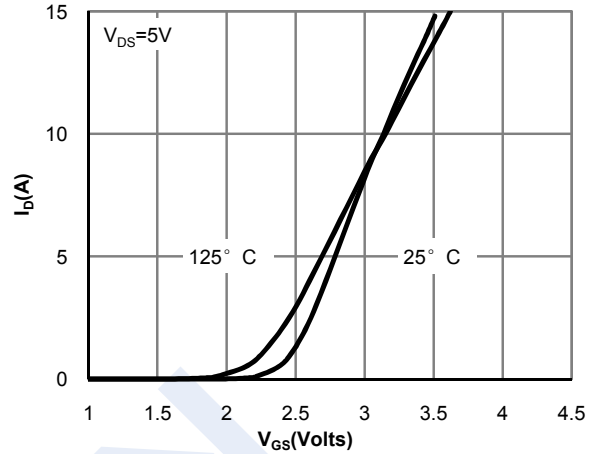


Figure 2: Transfer Characteristics (Note E)

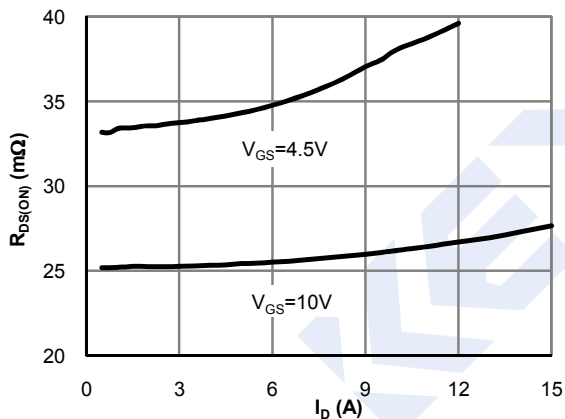


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

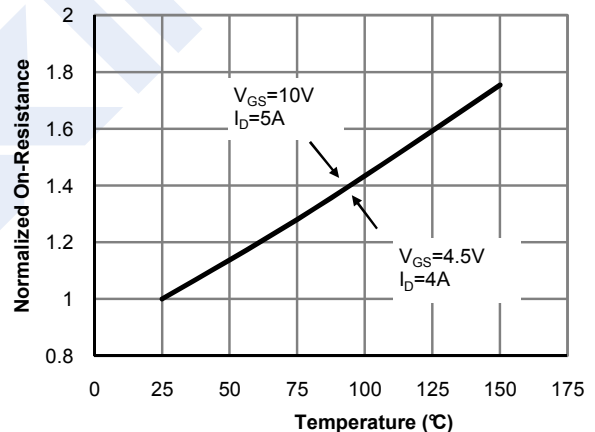


Figure 4: On-Resistance vs. Junction Temperature (Note E)

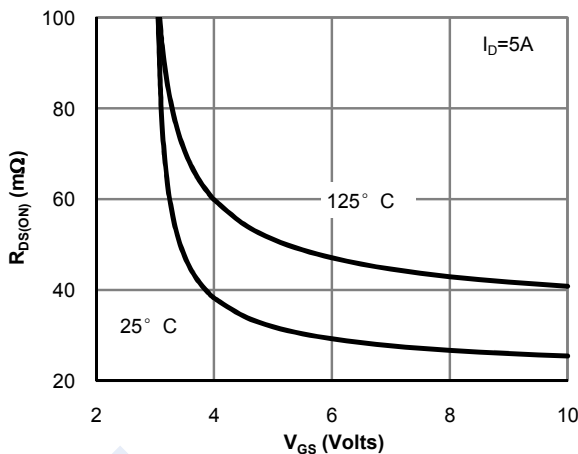


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

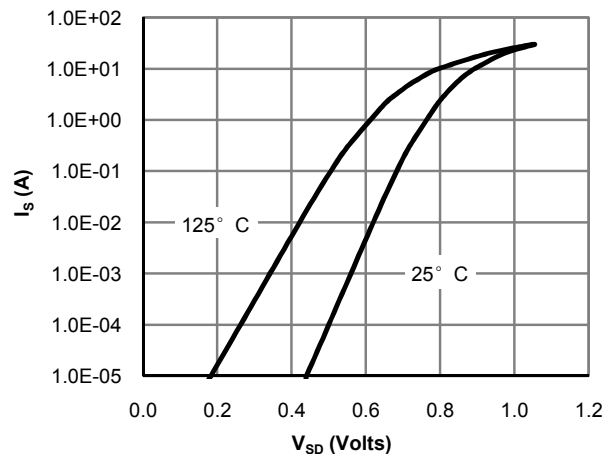


Figure 6: Body-Diode Characteristics (Note E)

## N-Channel MOSFET AO6424 (KO6424)

■ Typical Characteristics

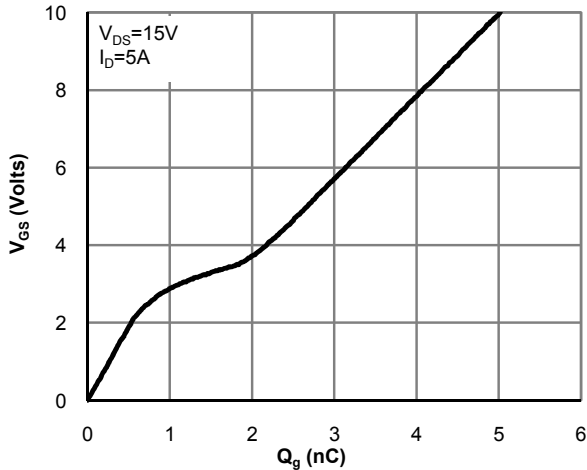


Figure 7: Gate-Charge Characteristics

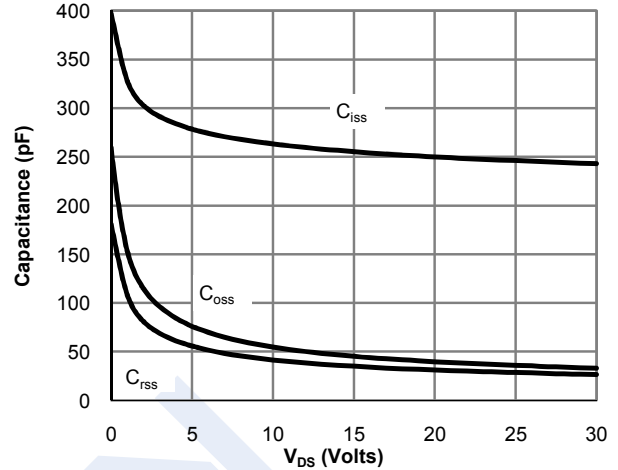


Figure 8: Capacitance Characteristics

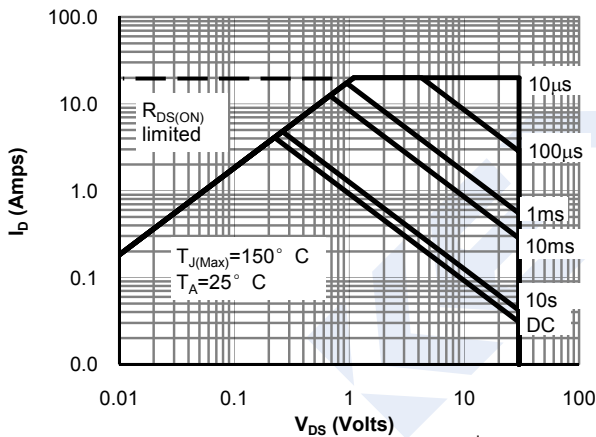


Figure 10: Maximum Forward Biased Safe Operating Area (Note F)

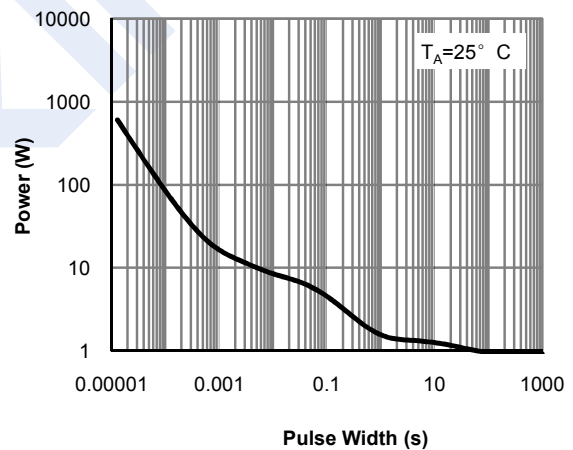


Figure 11: Single Pulse Power Rating Junction-to-Ambient (Note F)

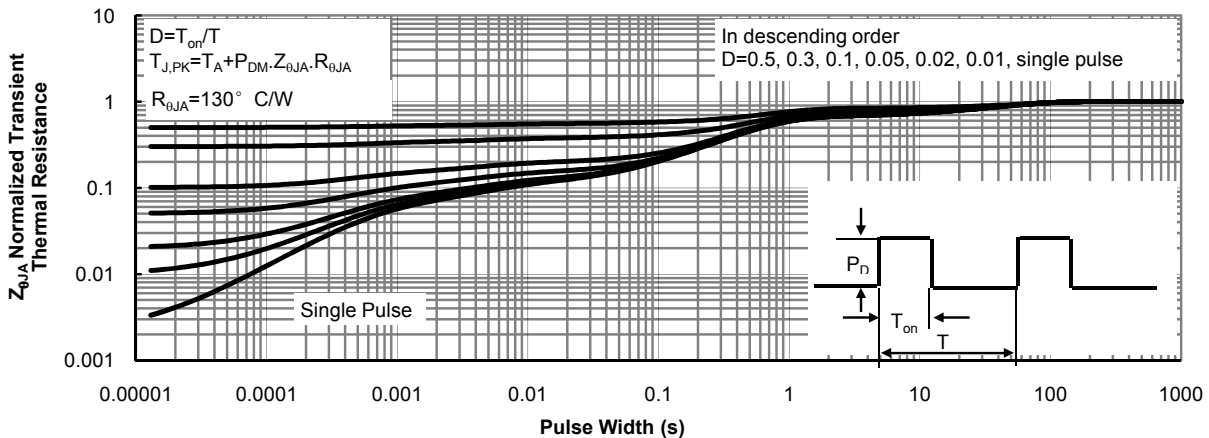


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)