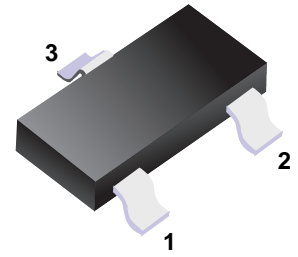


AO3402

■ N-Channel Enhancement MOSFET

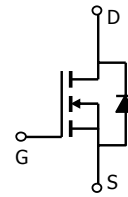
■ Features

- $V_{DS} (V) = 30V$
- $I_D = 4 A$
- $R_{DS(ON)} < 55m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 70m\Omega (V_{GS} = 4.5V)$
- $R_{DS(ON)} < 110m\Omega (V_{GS} = 2.5V)$



1. Gate
2. Source
3. Drain

■ Simplified outline(SOT23-3L)



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A=25^\circ C$	A
		$T_A=70^\circ C$	
Pulsed Drain Current	I_{DM}	15	
Power Dissipation	P_D	$T_A=25^\circ C$	W
		$T_A=70^\circ C$	
Thermal Resistance.Junction-to-Ambient	$R_{\theta JA}$	125	$^\circ C/W$
Thermal Resistance.Junction-to-Case	$R_{\theta JC}$	80	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μ A, V _{GS} =0V	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μ A
		V _{DS} =24V, V _{GS} =0V, T _J =55°C			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 =250 μ A	0.6	1	1.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =4A		45	55	mΩ
		V _{GS} =10V, I _D =4A T _J =125°C		66	80	
		V _{GS} =4.5V, I _D =3A		55	70	mΩ
		V _{GS} =2.5V, I _D =2A		83	110	mΩ
On state drain current	I _{D(ON)}	V _{GS} =4.5V, V _{DS} =5V	10			A
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =4A		8		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		390		pF
Output Capacitance	C _{oss}			54.5		pF
Reverse Transfer Capacitance	C _{rss}			41		pF
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		3		Ω
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =15V, I _D =-4A		4.34		nC
Gate Source Charge	Q _{gs}			0.6		nC
Gate Drain Charge	Q _{gd}			1.38		nC
Turn-On DelayTime	t _{D(on)}	V _{GS} =10V, V _{DS} =15V, R _L =3.75 Ω, R _{GEN} =6 Ω		3.3		ns
Turn-On Rise Time	t _r			1		ns
Turn-Off DelayTime	t _{D(off)}			21.7		ns
Turn-Off Fall Time	t _f			2.1		ns
Body Diode Reverse Recovery Time	t _{rr}	I _F =4A, dI/dt=100A/ μ s		12		ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =4A, dI/dt=100A/ μ s		6.3		nC
Maximum Body-Diode Continuous Current	I _S				2.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.8	1	V

■ Typical Characteristics

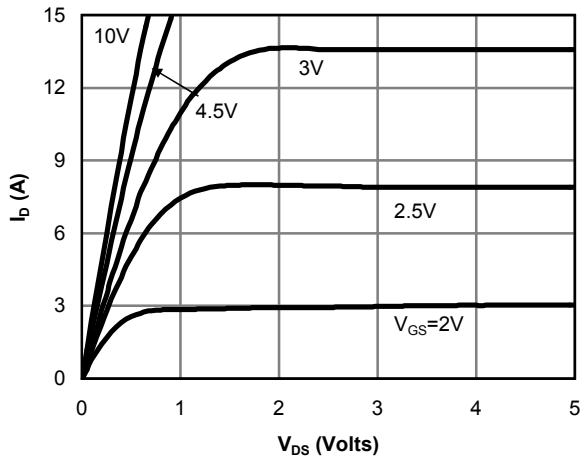


Fig 1: On-Region Characteristics

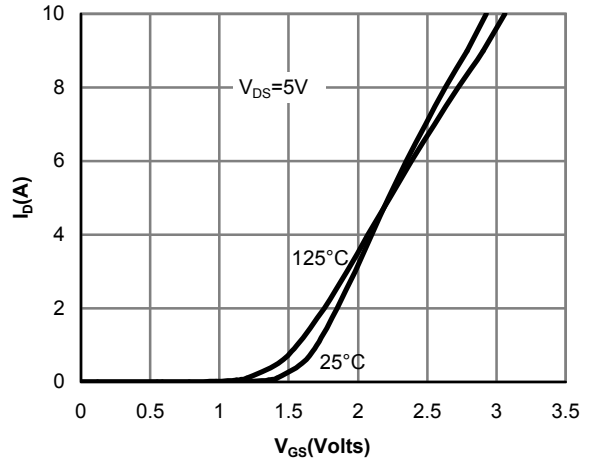


Figure 2: Transfer Characteristics

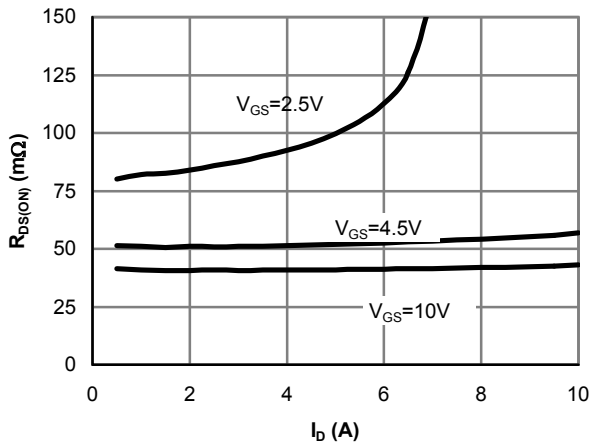


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

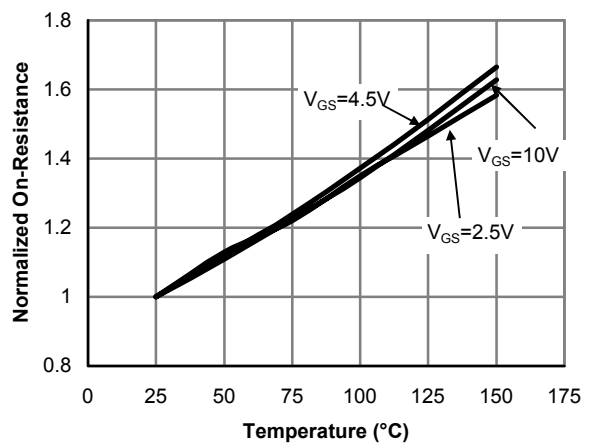


Figure 4: On-Resistance vs. Junction Temperature

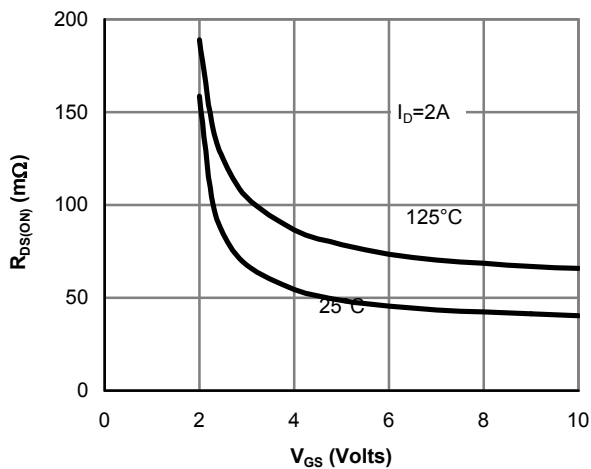


Figure 5: On-Resistance vs. Gate-Source Voltage

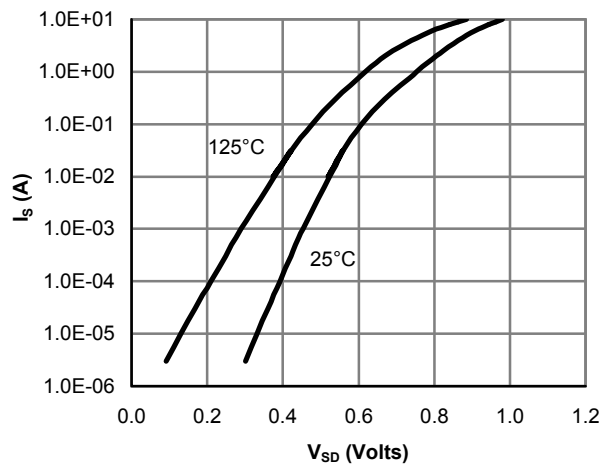


Figure 6: Body-Diode Characteristics

■ Typical Characteristics

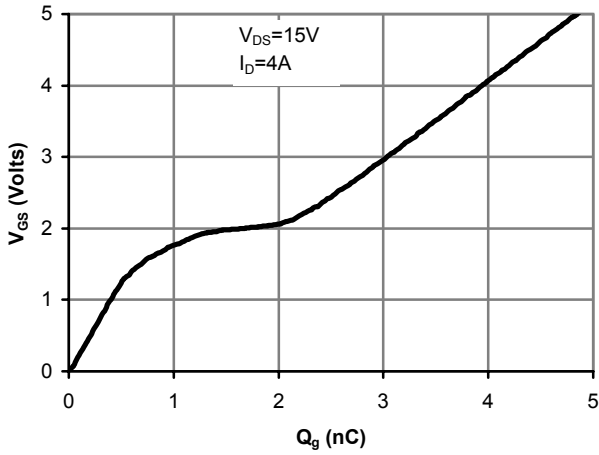


Figure 7: Gate-Charge Characteristics

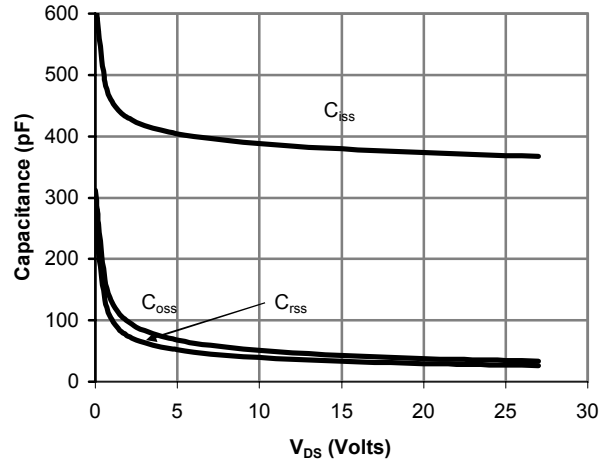


Figure 8: Capacitance Characteristics

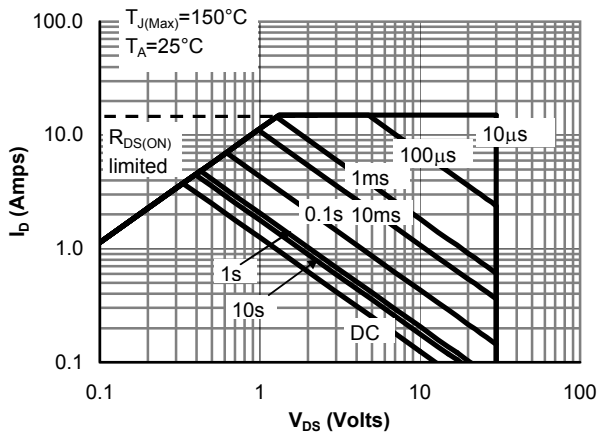


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

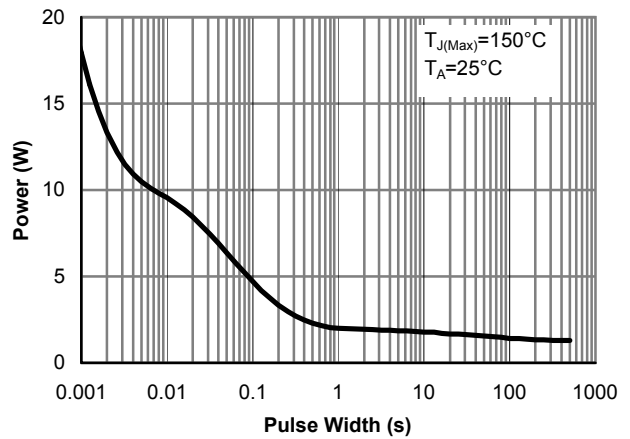


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

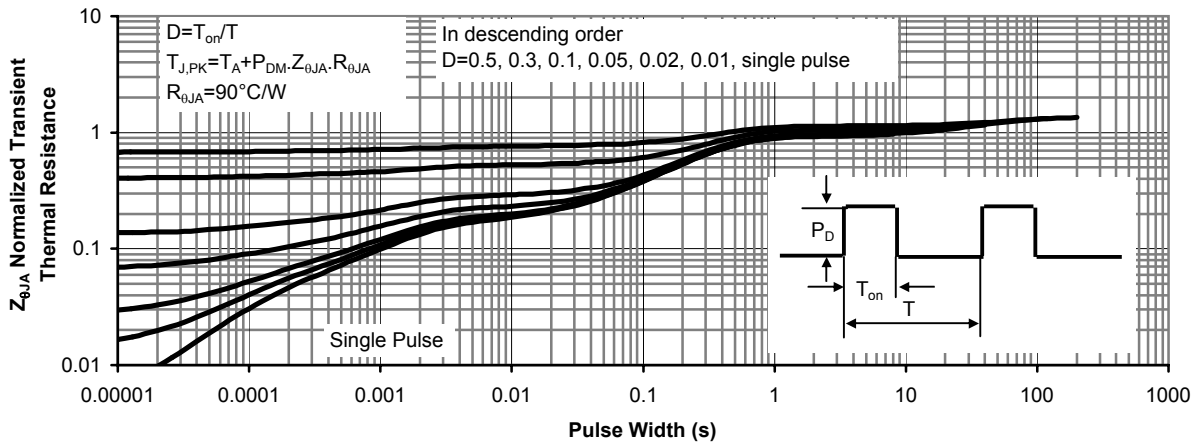
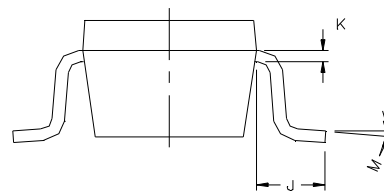
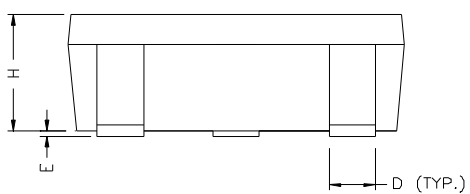
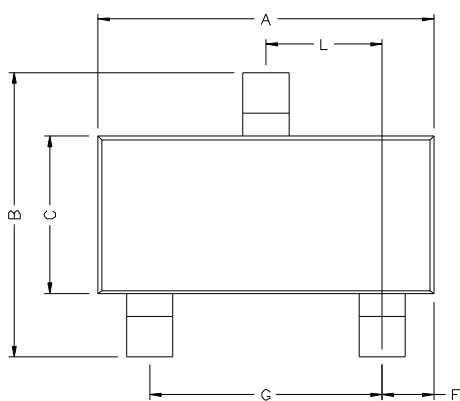


Figure 11: Normalized Maximum Transient Thermal Impedance

■ SOT23-3L



DIMENSIONS (mm are the original dimensions)

UNIT	A	B	C	D	E	F	G	H	K	J	L	M
mm	2.70	2.65	1.50	0.35	0	0.45	1.9	1.00	0.10	0.40	0.85	0°
	3.10	2.95	1.70	0.50	0.10	0.55		1.30	0.20	-	1.15	10°