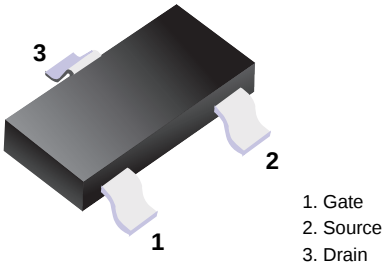


AO3402

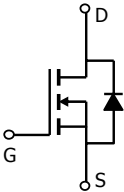
N-Channel Enhancement MOSFET

Features

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



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 $T_A=25^{\circ}C$ $T_A=70^{\circ}C$	I_D	4 3.4	A
Pulsed Drain Current	I_{DM}	15	
Power Dissipation $T_A=25^{\circ}C$ $T_A=70^{\circ}C$	P_D	1.4 1	W
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℃

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℃			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	m Ω
		V _{GS} =10V, I _D =4A T _J =125℃		66	80	
		V _{GS} =4.5V, I _D =3A		55	70	m Ω
		V _{GS} =2.5V, I _D =2A		83	110	m Ω
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

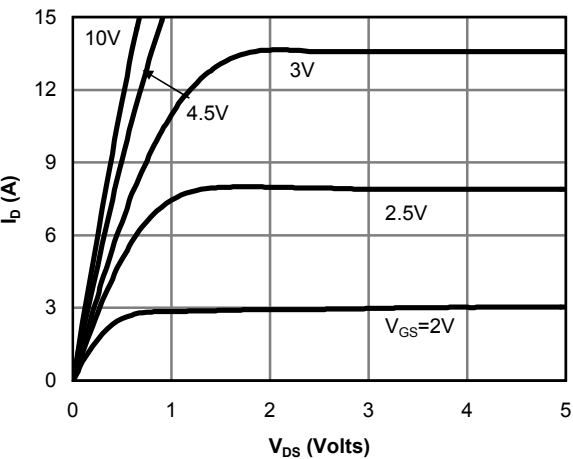


Fig 1: On-Region Characteristics

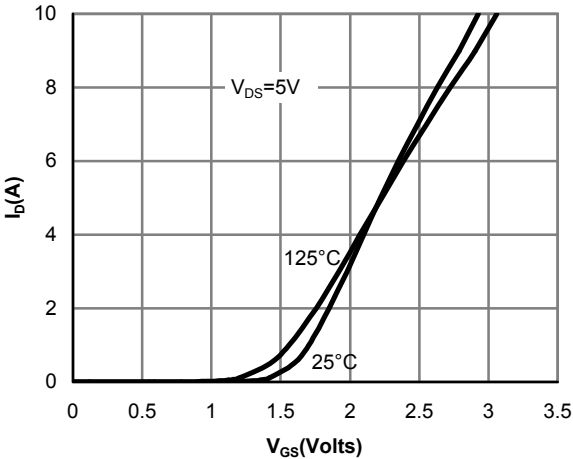


Figure 2: Transfer Characteristics

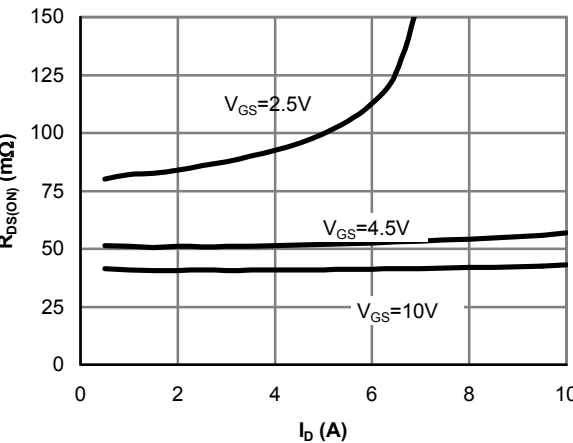


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

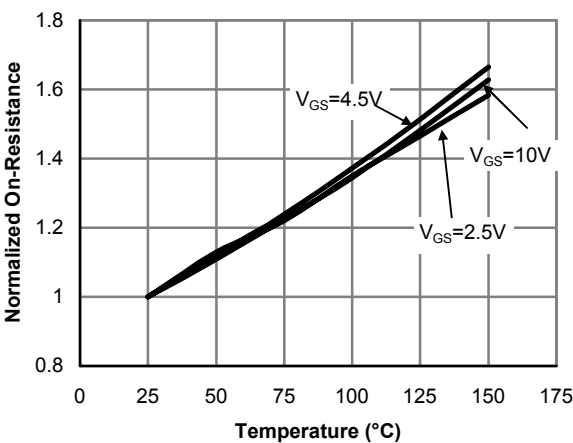


Figure 4: On-Resistance vs. Junction Temperature

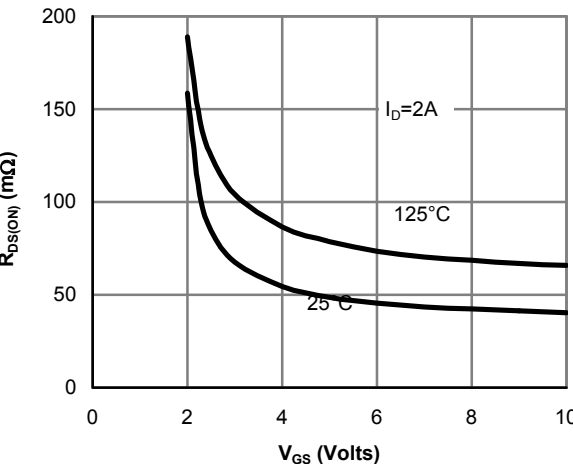


Figure 5: On-Resistance vs. Gate-Source Voltage

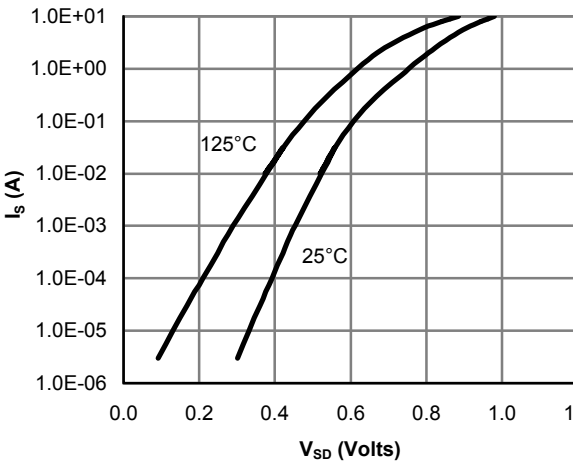


Figure 6: Body-Diode Characteristics

■ Typical Characteristics

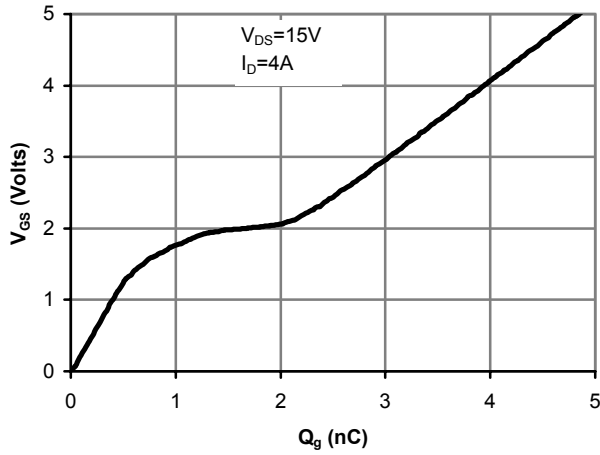


Figure 7: Gate-Charge Characteristics

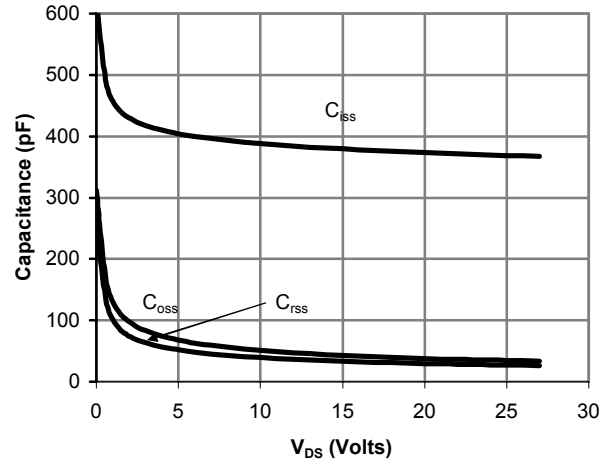


Figure 8: Capacitance Characteristics

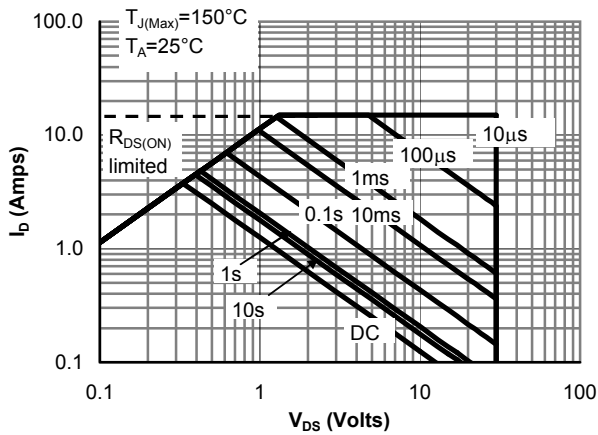


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

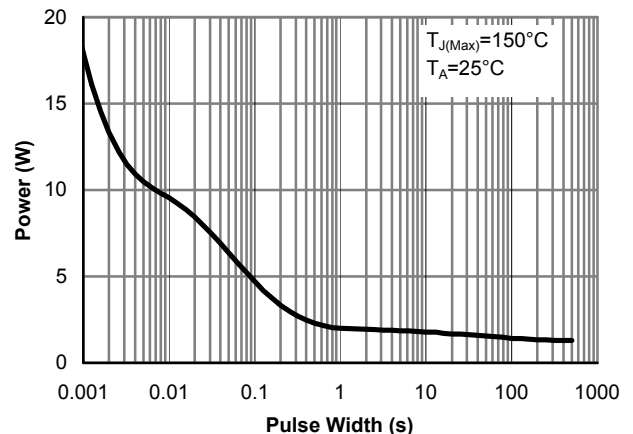


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

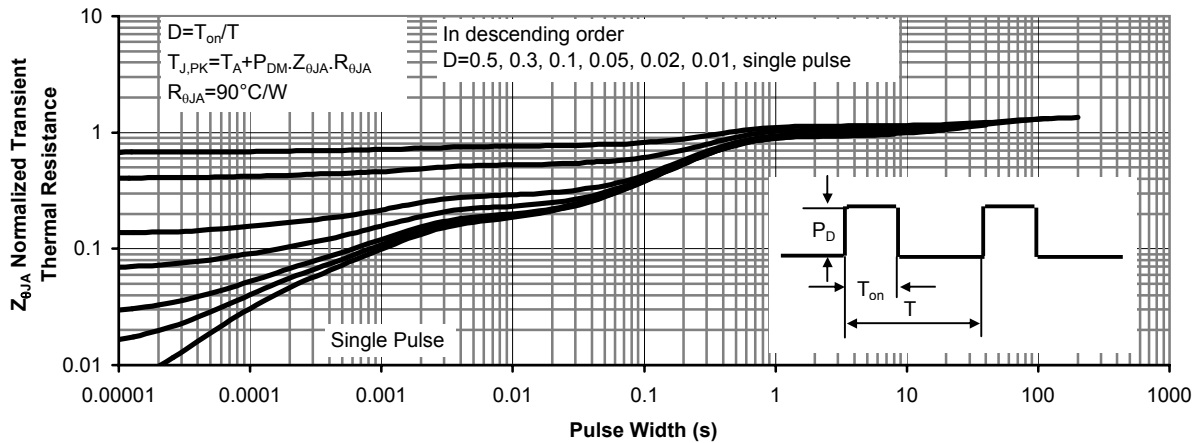
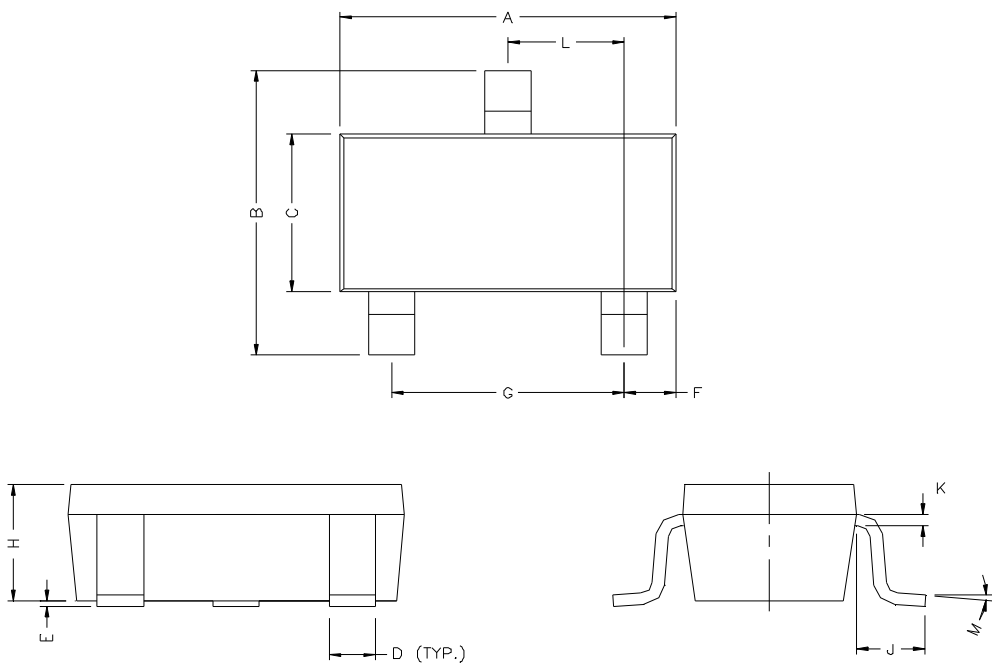


Figure 11: Normalized Maximum Transient Thermal Impedance

■ SOT23-3L



DIMENSIONS (mm are the original dimensions)

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