

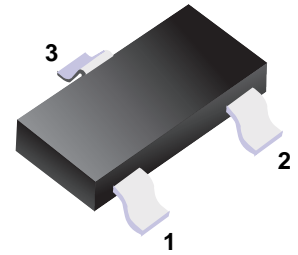
■ N-Channel Enhancement MOSFET

■ Features

- $V_{DS} (V) = 30V$
- $I_D = 5.8 A (V_{GS}=10V)$
- $R_{DS(ON)} < 28 m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 43 m\Omega (V_{GS} = 4.5V)$

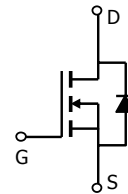
■ Marking

Marking	A4**
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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}	± 20	
Continuous Drain Current	$T_a=25^\circ C$	I_D	5.8	A
	$T_a=100^\circ C$		4.9	
Pulsed Drain Current		I_{DM}	20	
Power Dissipation	$T_a=25^\circ C$	P_D	1.4	W
	$T_a=70^\circ C$		1	
Thermal Resistance.Junction- to-Ambient	$t \leq 5sec$	R_{thJA}	90	$^\circ C/W$
	Steady State		125	
Thermal Resistance.Junction- to-Lead		R_{thJL}	60	
Junction Temperature		T_J	150	$^\circ C$
Storage Temperature Range		T_{stg}	-55 to 150	

■ 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} =±20V			100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} I _D =250 μ A	1	1.9	3	V
On state drain current	I _{D(ON)}	V _{GS} =4.5V, V _{DS} =5V	20			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =5.8A		22.5	28	m Ω
		V _{GS} =10V, I _D =5.8A T _J =125°C		31.3	38	
		V _{GS} =4.5V, I _D =5.0A		34.5	43	m Ω
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =5.8A	10	14.5		S
Diode Forward Voltage	V _{SD}	I _S =1A		0.76	1	V
Maximum Body-Diode Continuous Current	I _S				2.5	A
Reverse Transfer Capacitance	C _{iss}			680	820	pF
Gate resistance	C _{oss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		102		pF
Input Capacitance	C _{rss}			77		pF
Output Capacitance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		3	3.6	Ω
Total Gate Charge (10V)	Q _g	V _{GS} =10V, V _{DS} =15V, I _D =5.8A		13.88	17	nC
Total Gate Charge (4.5V)	Q _g			6.78	8.1	nC
Gate Source Charge	Q _{gs}			1.8		nC
Gate Drain Charge	Q _{gd}			3.12		nC
Turn-On Rise Time	t _{D(on)}				4.6	6.5
Turn-Off DelayTime	t _r	V _{GS} =10V, V _{DS} =15V, R _L =2.7 Ω, R _{GEN} =3 Ω		3.8	5.7	ns
Turn-Off Fall Time	t _{D(off)}			20.9	30	ns
Turn-On DelayTime	t _f			5	7.5	ns
Body Diode Reverse Recovery Time	t _{rr}	I _F =5.8A, di/dt=100A/μ s		16.1	21	ns
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =5.8A, di/dt=100A/μ s		7.4	10	nC

■ Marking

Marking	A4*
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■ Typical Characteristics

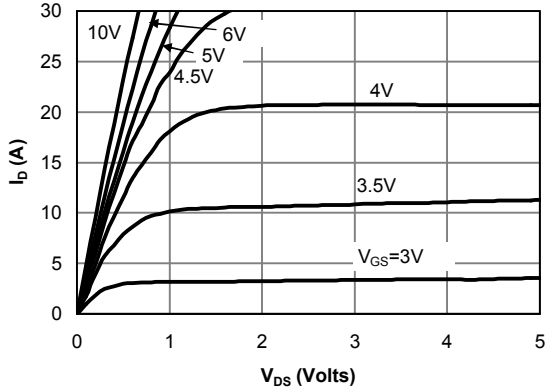


Fig 1: On-Region Characteristics

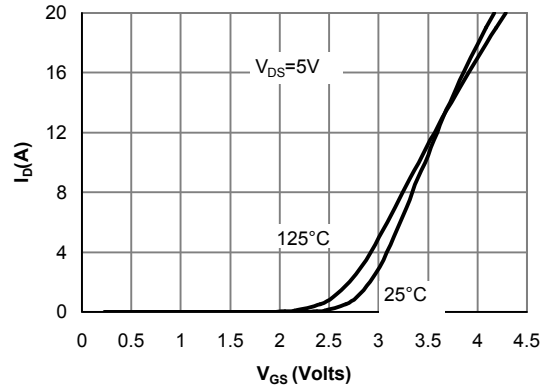


Figure 2: Transfer Characteristics

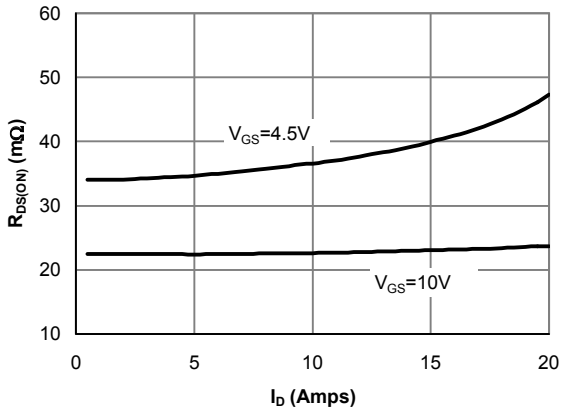


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

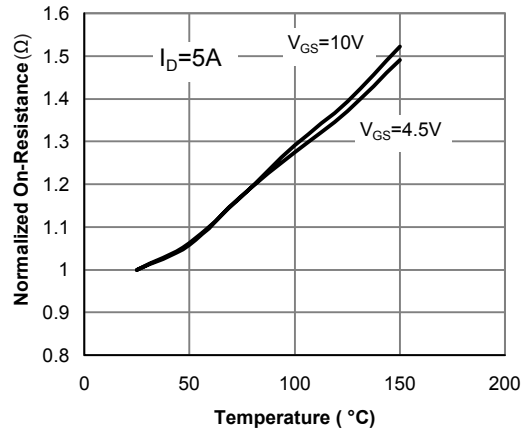


Figure 4: On-Resistance vs. Junction Temperature

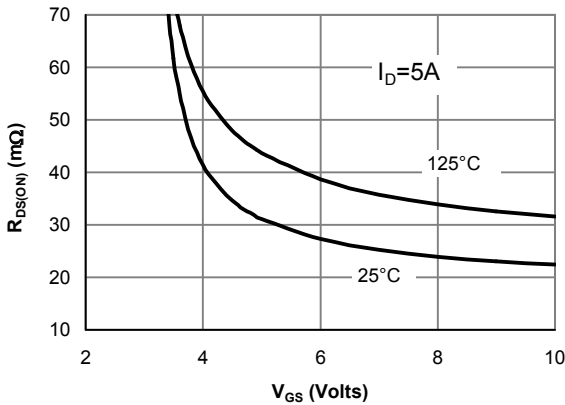


Figure 5: On-Resistance vs. Gate-Source Voltage

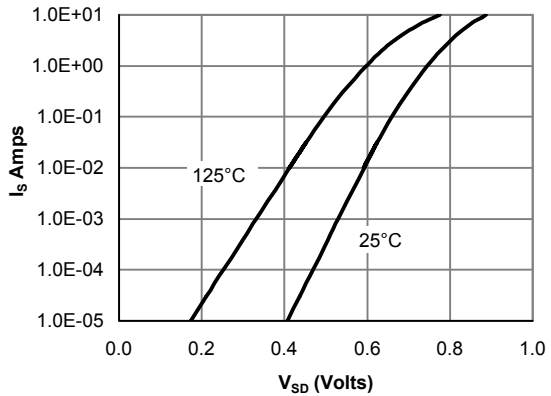


Figure 6: Body diode characteristics

■ Typical Characteristics

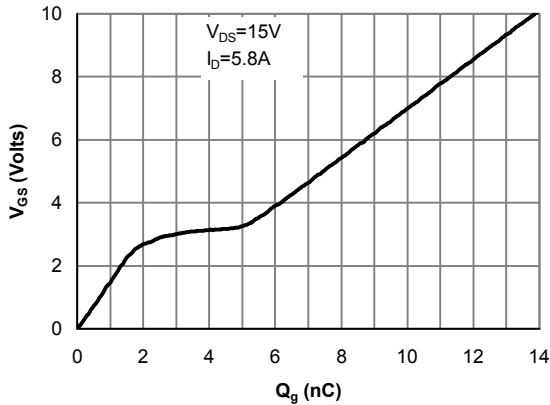


Figure 7: Gate-Charge characteristics

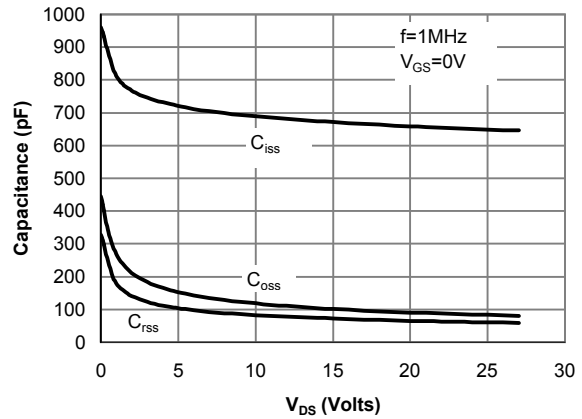


Figure 8: Capacitance Characteristics

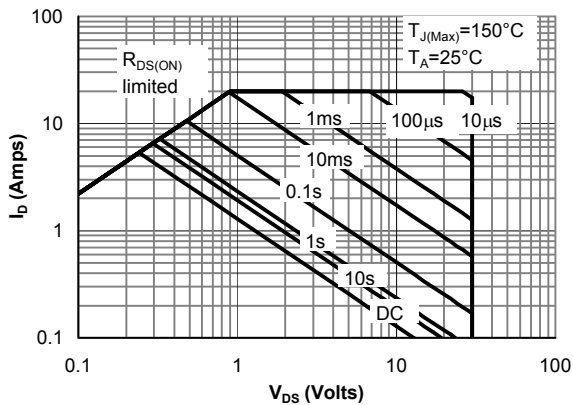


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

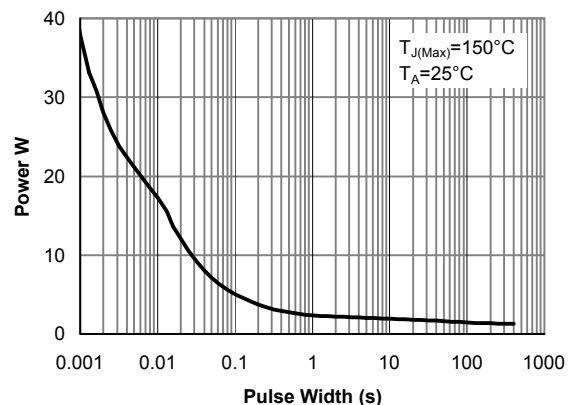


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

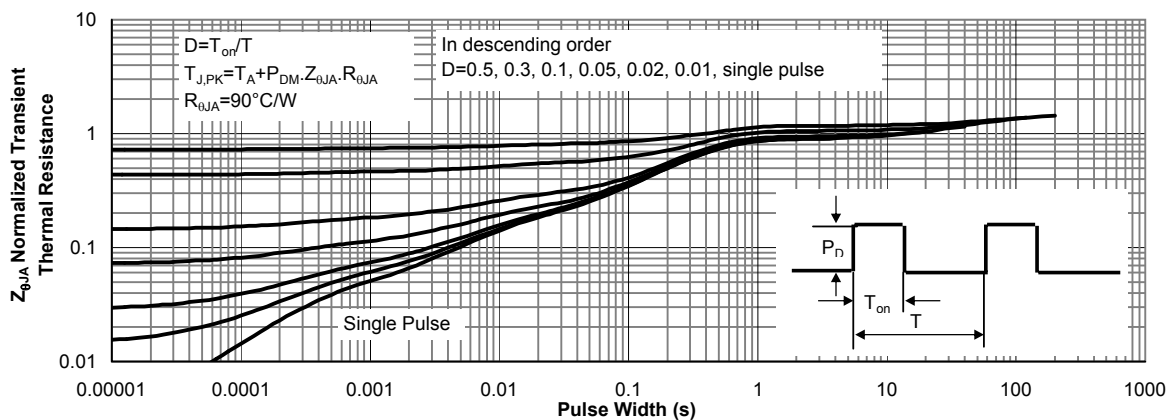
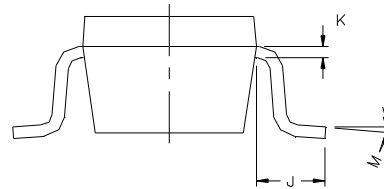
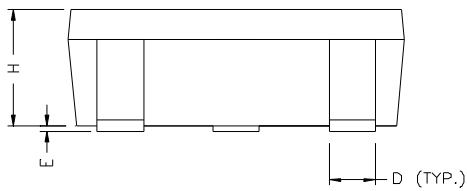
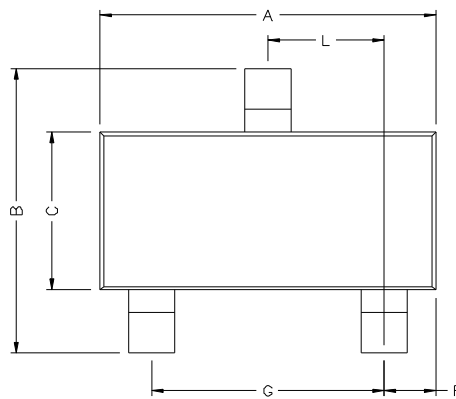


Figure 11: Normalized Maximum Transient Thermal Impedance

■ 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°