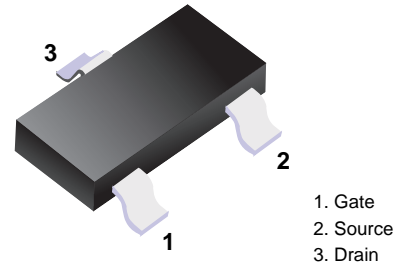


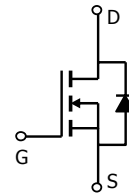
■ **N-Channel Enhancement MOSFET**



■ **Features**

- $V_{DS(V)} = 30V$
- $I_D = 5.8 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 28m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 33m\Omega (V_{GS} = 4.5V)$
- $R_{DS(ON)} < 52m\Omega (V_{GS} = 2.5V)$

■ **Simplified outline(SOT23-3L)**



■ **Marking**

Marking	XORB
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■ **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}	30	
Power Dissipation	P_D	$T_A=25^\circ C$	W
		$T_A=70^\circ C$	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	125	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thc}	60	$^\circ C/W$
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

* Repetitive rating, pulse width limited by junction temperature.

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	0.7	1.1	1.4	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =5.8A		22.8	28	m Ω
		V _{GS} =10V, I _D =5.8A T _J =125°C		32	39	
		V _{GS} =4.5V, I _D =5A		27.3	33	m Ω
		V _{GS} =2.5V, I _D =4A		43.3	52	m Ω
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 =5A	10	15		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =15V, f=1MHz		823	1050	pF
Output Capacitance	C _{oss}			99		pF
Reverse Transfer Capacitance	C _{rss}			77		pF
Gate resistance	R _g		V _{GS} =0V, V _{DS} =0V, f=1MHz		1.4	3.6
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =15V, I _D =5.8A		9.7	12	nC
Gate Source Charge	Q _{gs}			1.6		nC
Gate Drain Charge	Q _{gd}			3.1		nC
Turn-On DelayTime	t _{D(on)}			3.3	5	ns
Turn-On Rise Time	t _r	V _{GS} =10V, V _{DS} =15V, R _L =2.7 Ω, R _{GEN} =3 Ω		4.8	7	ns
Turn-Off DelayTime	t _{D(off)}			26.3	40	ns
Turn-Off Fall Time	t _f			4.1	6	ns
Body Diode Reverse Recovery Time	t _{rr}		I _F =5A, di/dt=100A/ μ s		16	20
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =5A, di/dt=100A/ μ s		8.9	12	nC
Maximum Body-Diode Continuous Current	I _S				2.5	A
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.71	1	V

■ Typical Characteristics

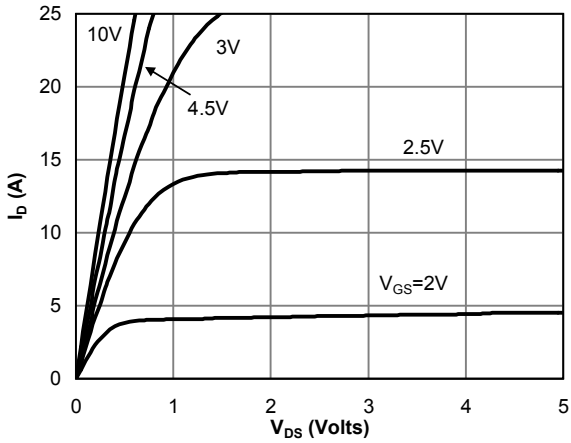


Fig 1: On-Region Characteristics

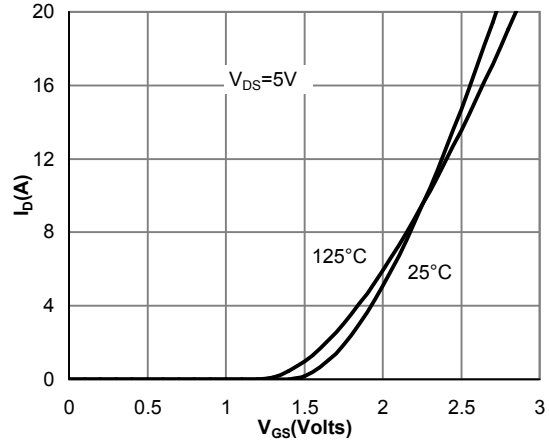


Figure 2: Transfer Characteristics

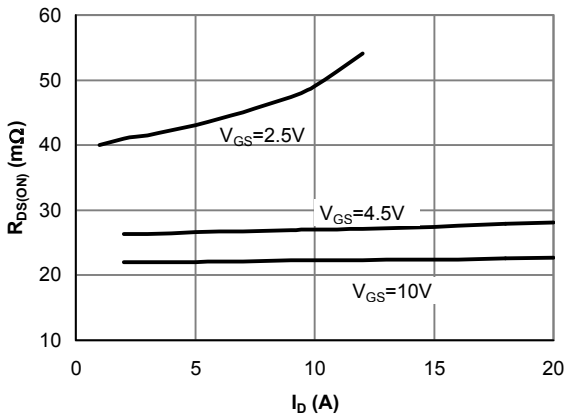


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

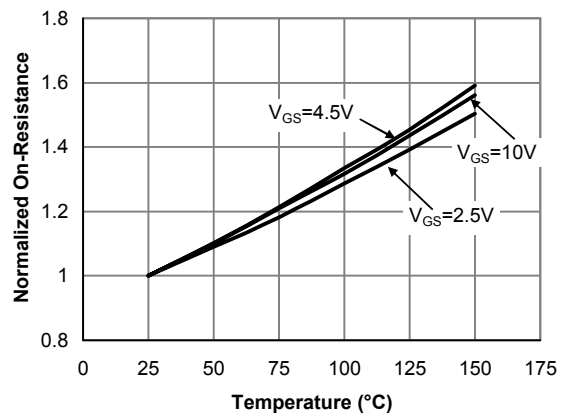


Figure 4: On-Resistance vs. Junction Temperature

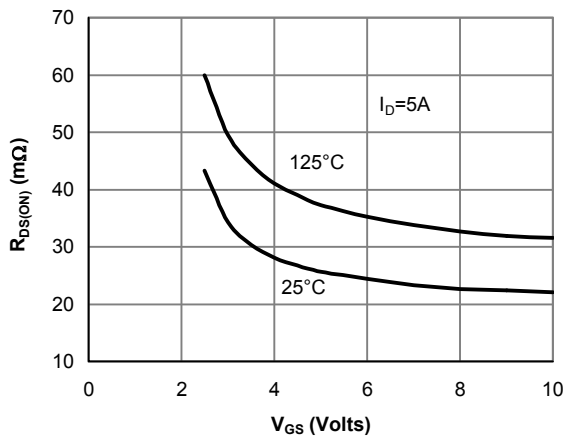


Figure 5: On-Resistance vs. Gate-Source Voltage

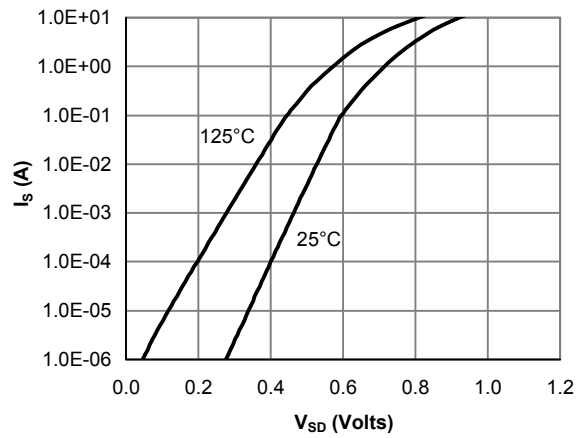


Figure 6: Body-Diode Characteristics

■ Typical Characteristics

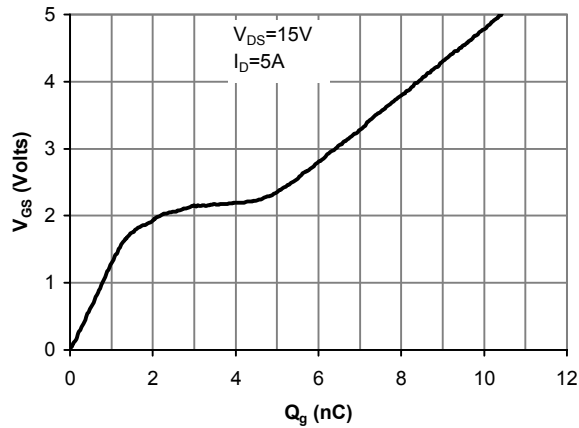


Figure 7: Gate-Charge Characteristics

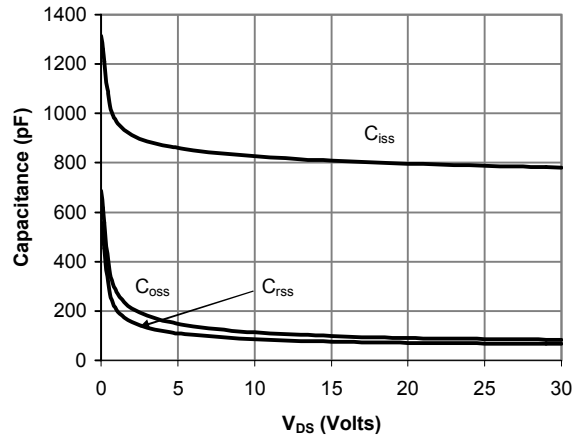


Figure 8: Capacitance Characteristics

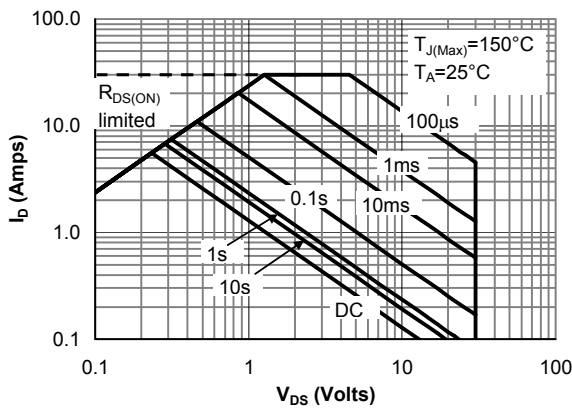


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

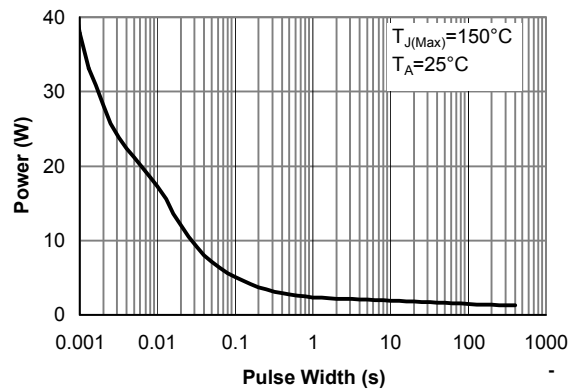


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

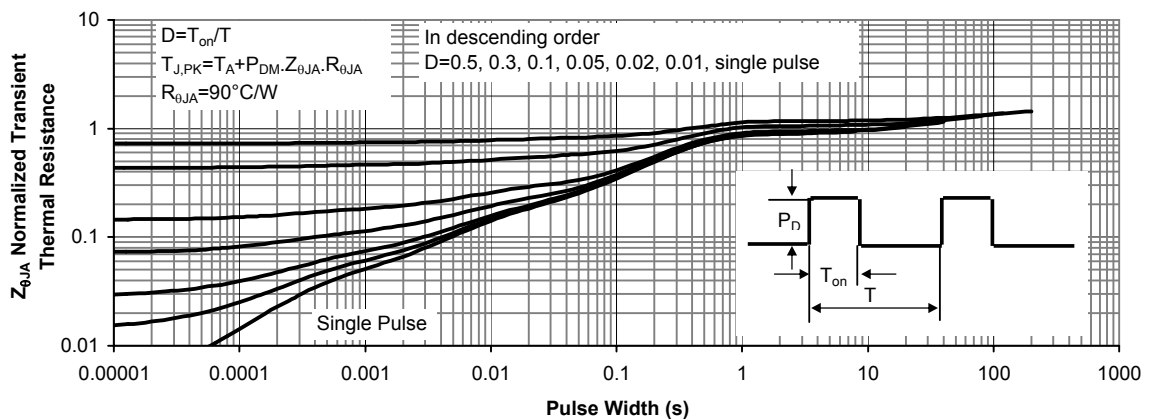
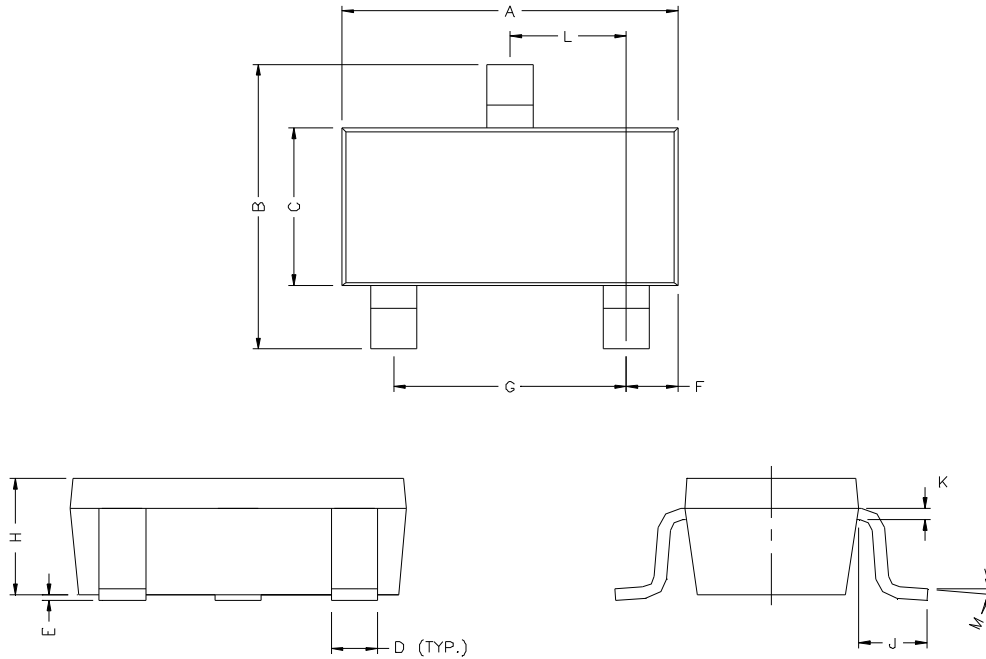


Figure 11: Normalized Maximum Transient Thermal Impedance

Package Outline

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°

Summary of Packing Options

Package	Package Description	Packing Quantity	Industry Standard
SOT23-3L	Tape/Reel, 7" reel	3000	EIA-481-1