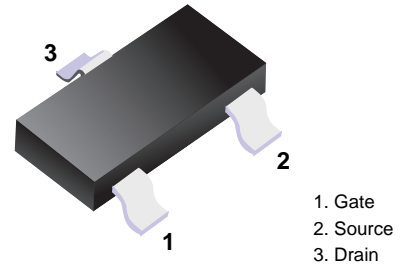


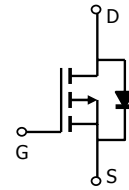
■ P-Channel Enhancement MOSFET



■ Features

- $V_{DS} (V) = -30V$
- $I_D = -4.2 A (V_{GS} = -10V)$
- $R_{DS(ON)} < 60m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 65m\Omega (V_{GS} = -4.5V)$
- $R_{DS(ON)} < 120m\Omega (V_{GS} = -2.5V)$

■ Simplified outline(SOT23-3L)



■ MARKING

Marking	B1H
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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		
Continuous Drain Current	I_D	$T_a = 25^\circ C$	-4.2	A
		$T_a = 70^\circ C$	-3.5	
Pulsed Drain Current	I_{DM}	-30		
Power Dissipation	P_D	$T_a = 25^\circ C$	1.4	W
		$T_a = 70^\circ C$	1	
Thermal Resistance.Junction- to-Ambient $t \leq 10s$	R_{thJA}		90	$^\circ C/W$
Thermal Resistance.Junction- to-Ambient			125	
Thermal Resistance.Junction- to-Case	R_{thJC}		60	
Junction Temperature	T_J	150	$^\circ C$	
Junction and Storage Temperature Range	T_{stg}	-55 to 150		

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =-250 μA, V _{GS} =0V	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
		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 μA	-0.7	-1	-1.3	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-4.2A		52	60	mΩ
		V _{GS} =-10V, I _D =-4.2A T _J =125°C			75	
		V _{GS} =-4.5V, I _D =-4A		60	65	
		V _{GS} =-2.5V, I _D =-1A		75	120	
On state drain current	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-25			A
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-5A	4	8		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		954		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			77		
Gate resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz		6		Ω
Total Gate Charge	Q _g	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-4A		9.4		nC
Gate Source Charge	Q _{gs}			2		
Gate Drain Charge	Q _{gd}			3		
Turn-On DelayTime	t _{d(on)}	V _{GS} =-10V, V _{DS} =-15V, R _L =3.6 Ω, R _{GEN} =6 Ω		6.3		ns
Turn-On Rise Time	t _r			3.2		
Turn-Off DelayTime	t _{d(off)}			38.3		
Turn-Off Fall Time	t _f			12		
Body Diode Reverse Recovery Time	t _{rr}	I _F =-4A, di/dt=100A/μs		20.2		
Body Diode Reverse Recovery Charge	Q _{rr}	I _F =5A, di/dt=100A/μs		11.2		nC
Maximum Body-Diode Continuous Current	I _S				-2.2	A
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V		-0.75	-1	V

■ Typical Characteristics

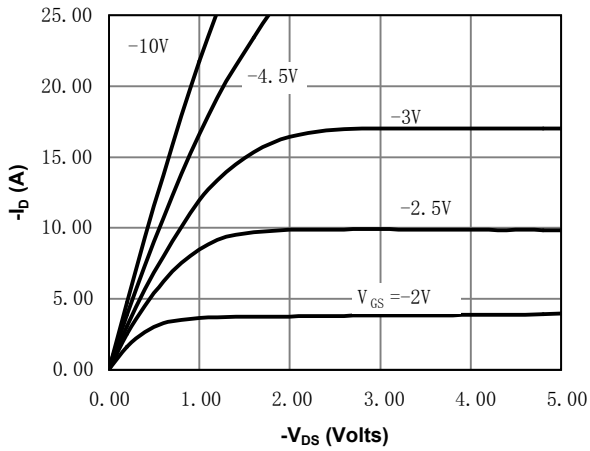


Fig 1: On-Region Characteristics

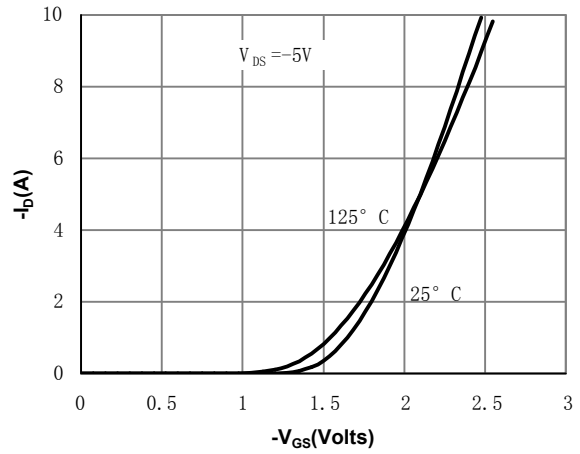


Figure 2: Transfer Characteristics

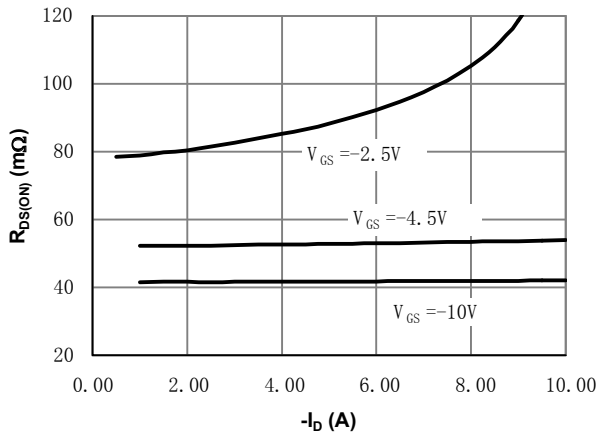


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

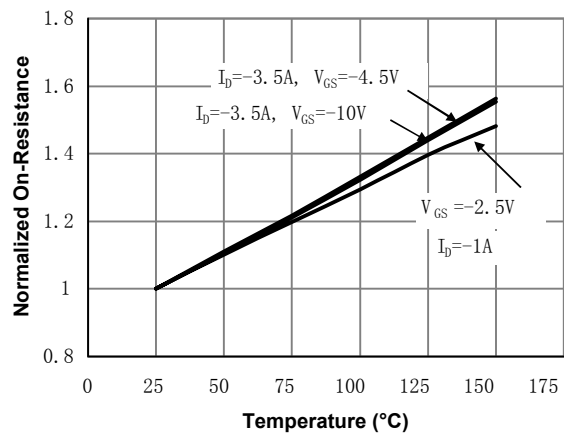


Figure 4: On-Resistance vs. Junction Temperature

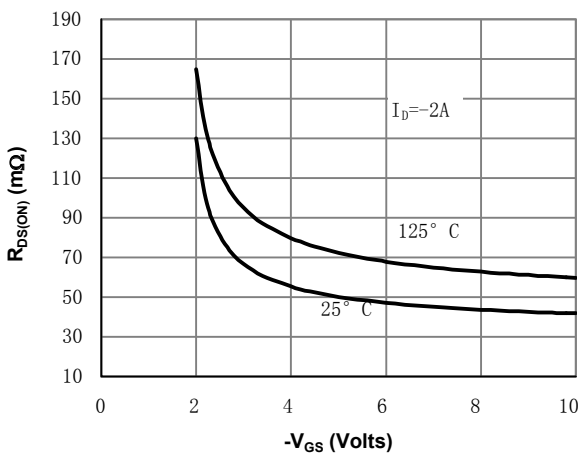


Figure 5: On-Resistance vs. Gate-Source Voltage

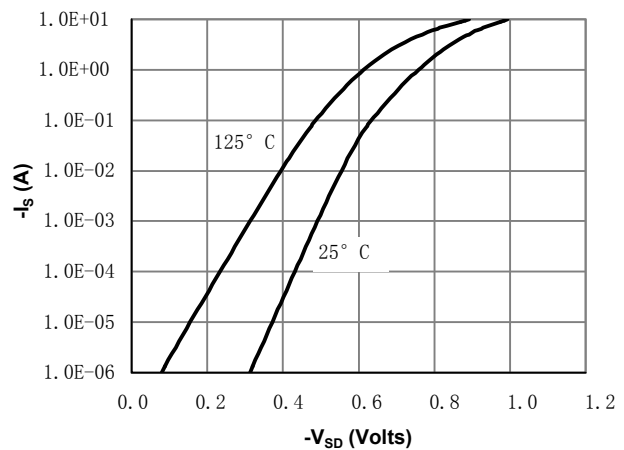


Figure 6: Body-Diode Characteristics

■ Typical Characteristics

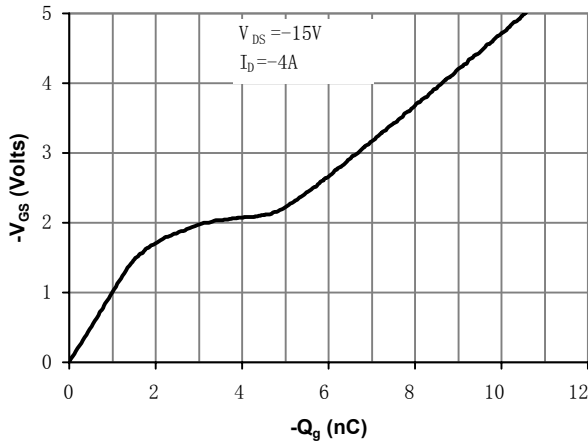


Figure 7: Gate-Charge Characteristics

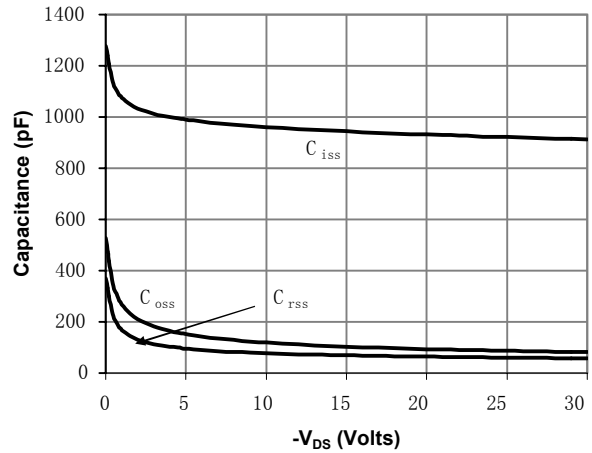


Figure 8: Capacitance Characteristics

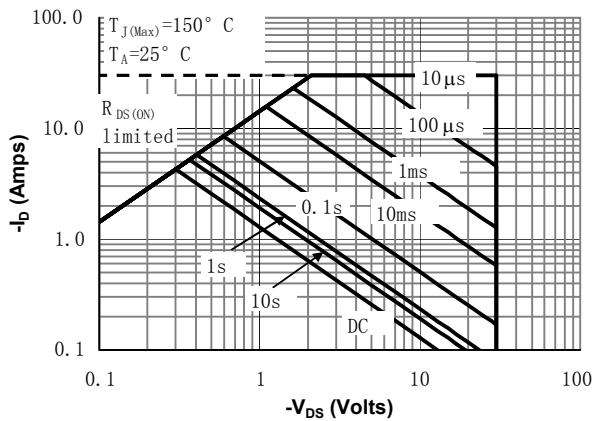


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

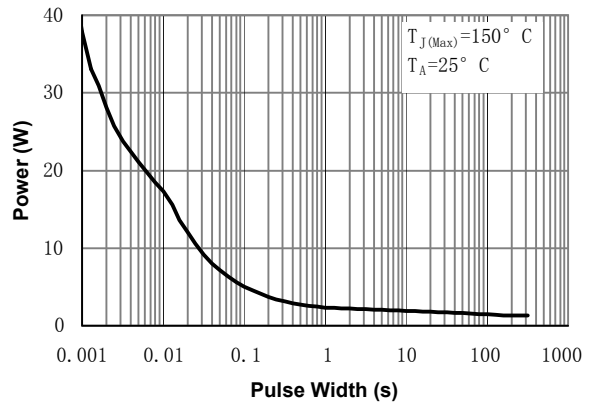


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

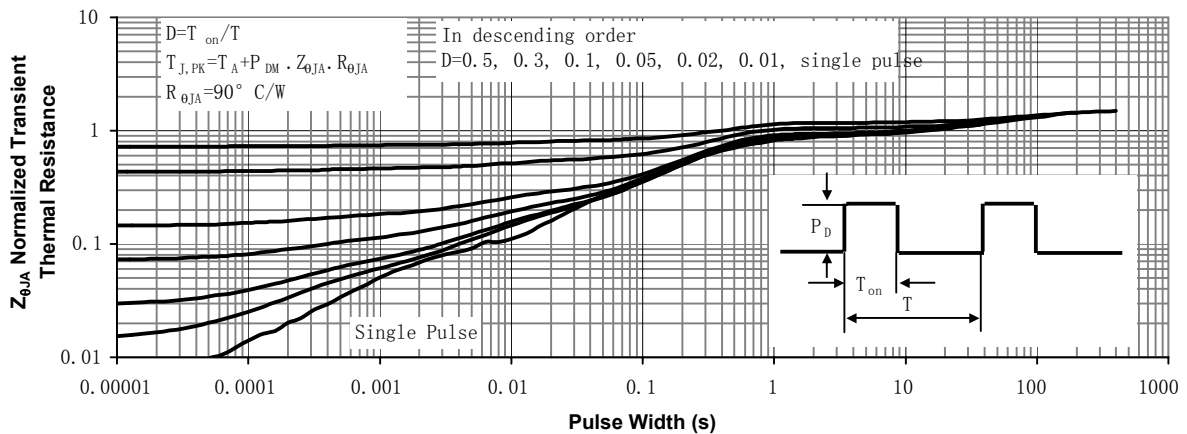
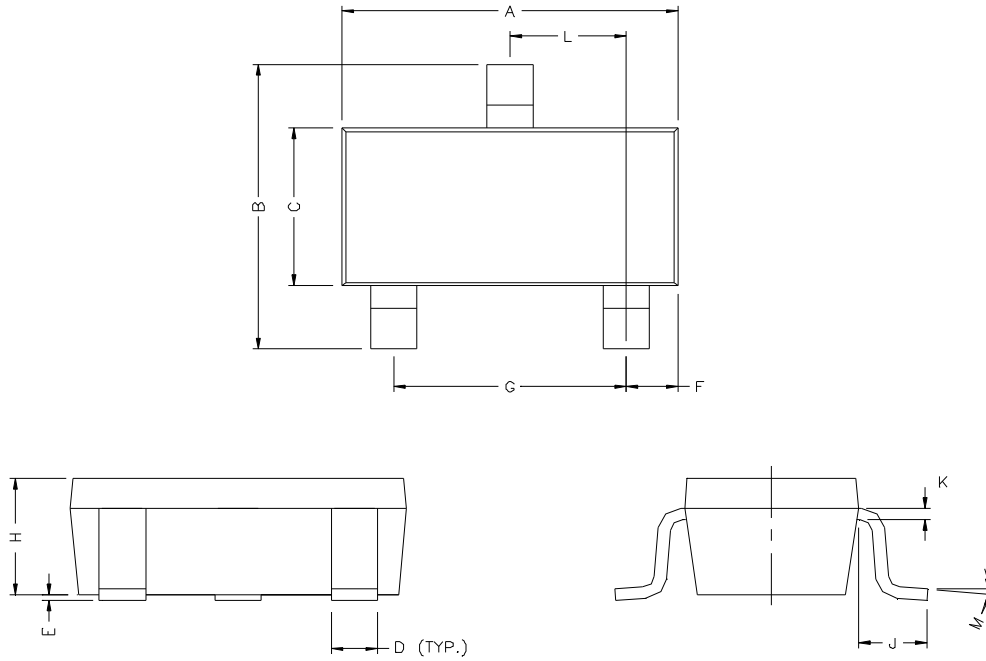


Figure 11: Normalized Maximum Transient Thermal Impedance

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

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