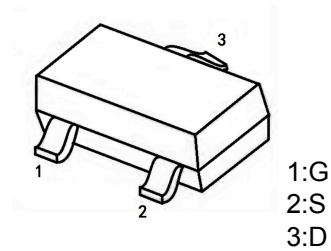


30V N-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 42m\Omega$ (32m Ω Typ.)
@ $V_{GS}=10V$
- $R_{DS(ON)} \leq 48m\Omega$ (36m Ω Typ.)
@ $V_{GS}=4.5V$
- $R_{DS(ON)} \leq 70m\Omega$ (50m Ω Typ.)
@ $V_{GS}=2.5V$

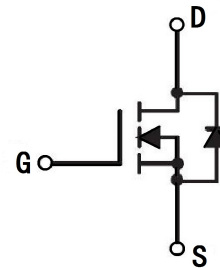
SOT-23



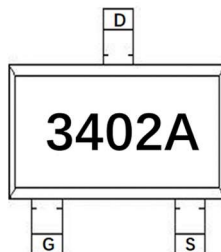
APPLICATIONS

- PWM Applications
- Load Switch
- Power Management

N-CHANNEL MOSFET



MARKING:



Maximum ratings (Ta=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	Ta = 25°C	4 A
		Ta = 100°C	2.6 A
I_{DM}	Pulsed Drain Current ^{note1}	16	A
P_D	Power Dissipation	Ta = 25°C	1.1 W
$R_{\theta JA}$	Thermal Resistance, Junction to Case	113.6	°C/W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	°C

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V,$	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}= \pm 12V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.9	1.4	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note2</small>	$V_{GS}=10V, I_D=4A$	-	32	42	m Ω
		$V_{GS}=4.5V, I_D=3A$	-	36	48	
		$V_{GS}=2.5V, I_D=2A$	-	50	70	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V,$ $f=1.0MHz$	-	285	-	pF
C_{oss}	Output Capacitance		-	33	-	pF
C_{rss}	Reverse Transfer Capacitance		-	27	-	pF
Q_g	Total Gate Charge	$V_{DS}=15V, I_D=4A,$ $V_{GS}=4.5V$	-	2.6	-	nC
Q_{gs}	Gate-Source Charge		-	0.6	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	0.9	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DS}=15V,$ $I_D=2A, R_{GEN}=3\Omega,$ $V_{GS}=4.5V$	-	15	-	ns
t_r	Turn-on Rise Time		-	42	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	16	-	ns
t_f	Turn-off Fall Time		-	10	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	4	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	16	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=4A$	-	-	1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

Typical Characteristics

Figure 1: Output Characteristics

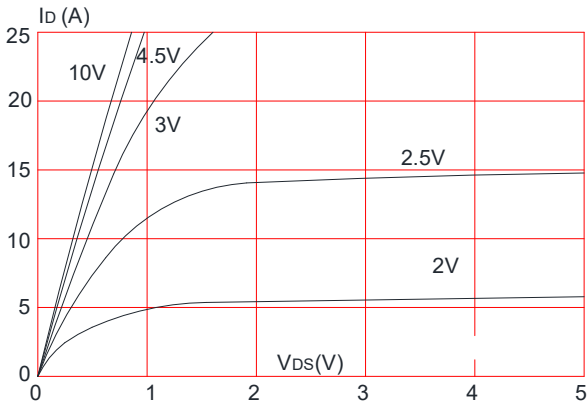


Figure 2: Typical Transfer Characteristics

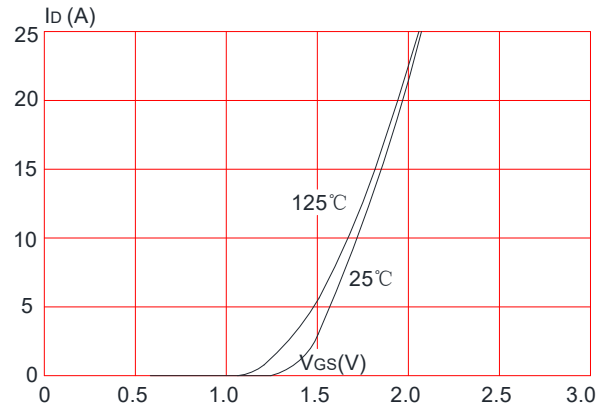


Figure 3: On-resistance vs. Drain Current

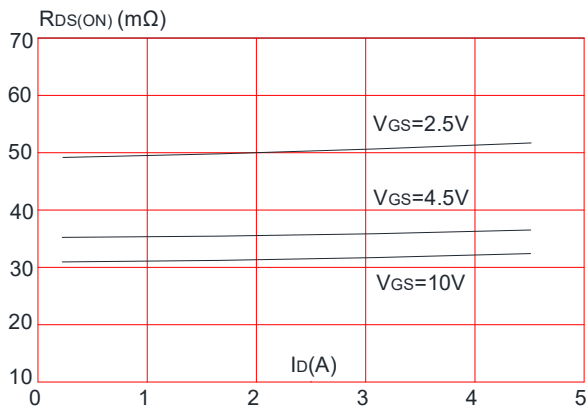


Figure 4: Body Diode Characteristics

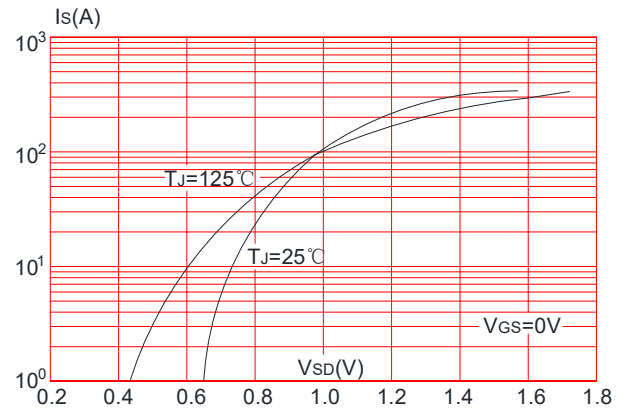


Figure 5: Gate Charge Characteristics

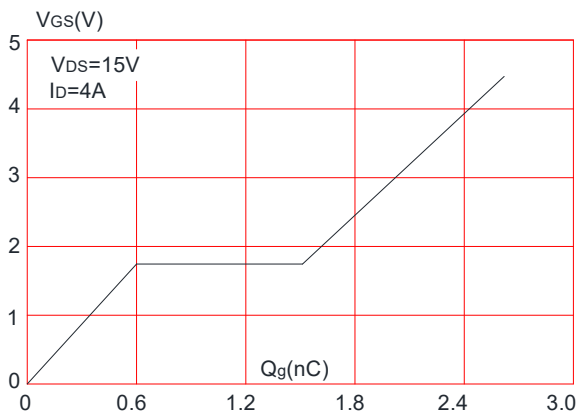
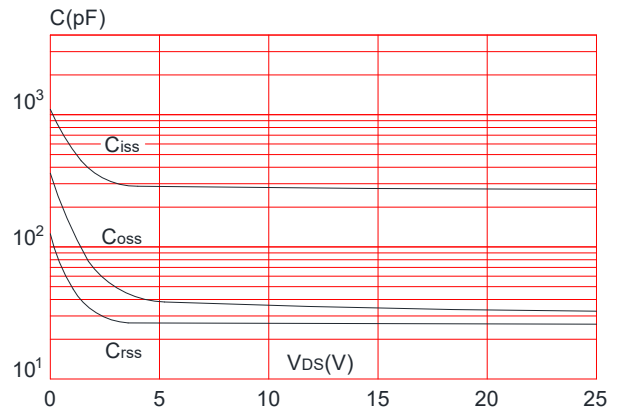


Figure 6: Capacitance Characteristics



Typical Characteristics (cont.)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

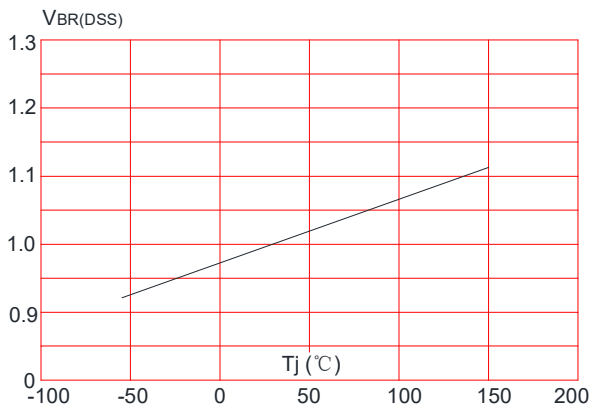


Figure 8: Normalized on Resistance vs. Junction Temperature

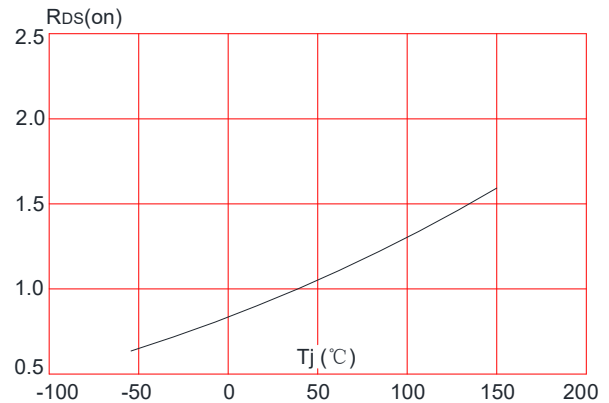


Figure 9: Maximum Safe Operating Area

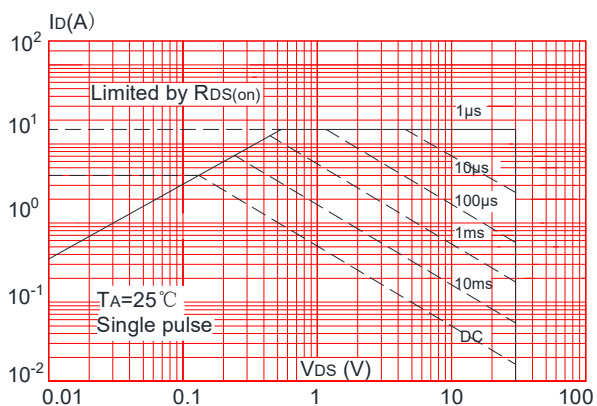


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

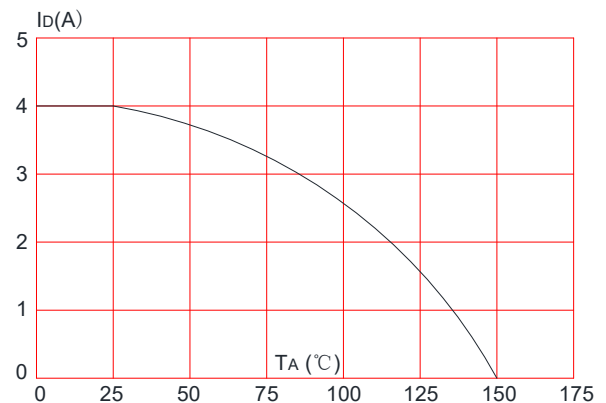
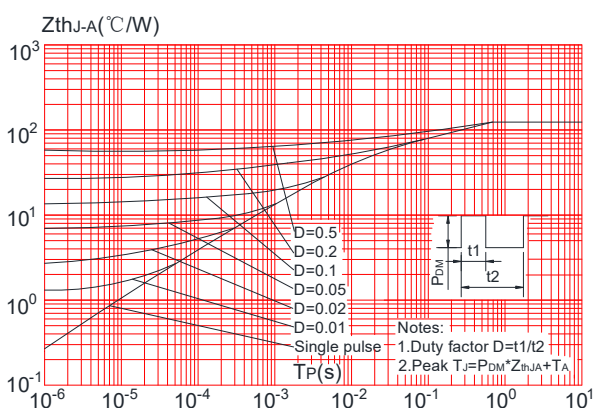
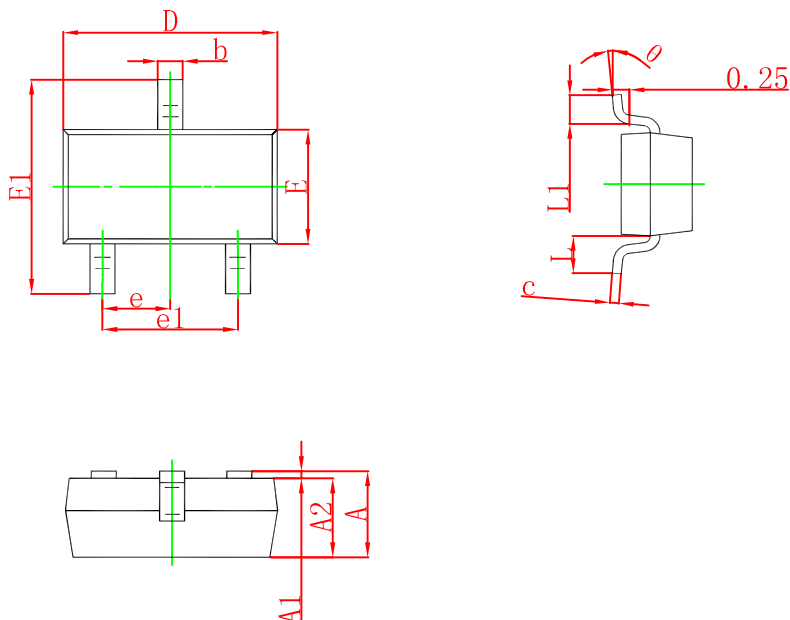


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°