

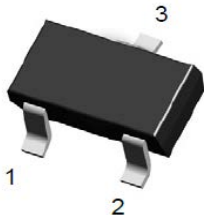
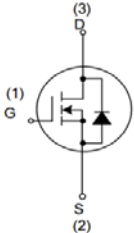
N-Channel Enhancement-Mode MOSFET (30V, 5.8A)

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(on)}$ (m Ω)Typ.
30V	5.8A	25 @ $V_{GS} = 10V, I_D = 5.8A$
		36 @ $V_{GS} = 4.5V, I_D = 4.0A$

Features

- Super high dense cell trench design for low $R_{DS(on)}$
- Rugged and reliable
- SOT-23-3L package
- Lead (Pb) -free and halogen-free

	<p>EV3404 Pin Assignment & Symbol 3-Lead Plastic SOT-23-3L Pin 1: Gate Pin 2: Source Pin3: Drain</p>	
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Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current (Continuous)	5.8	A
I_{DM}	Drain Current (Pulsed) ^a	20	A
P_D	Total Power Dissipation @ $T_A = 25^\circ\text{C}$	1.4	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
R_{QJA}	Thermal Resistance Junction to Ambient (PCB mounted) ^b	89	$^\circ\text{C/W}$

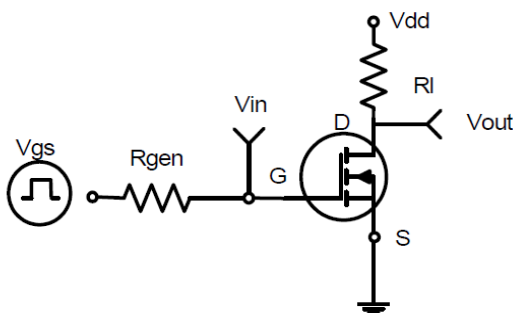
a: Repetitive Rating: Pulse width limited by the maximum junction temperature.

b: 1-in² 2oz Cu PCB board

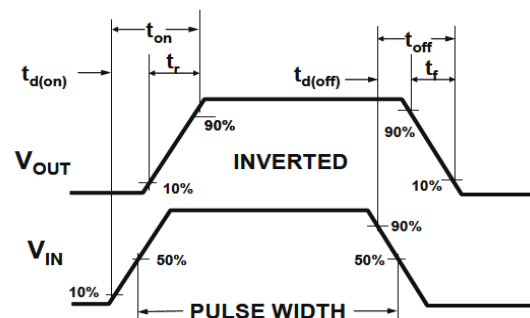
Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
• Off Characteristics						
BV_{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	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
• On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	1	1.6	2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=5A$	-	25	31	m Ω
		$V_{GS}=4.5V, I_D=4A$	-	36	42	
• Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$	-	255	-	PF
C_{oss}	Output Capacitance		-	45	-	
C_{rss}	Reverse Transfer Capacitance		-	35	-	
• Switching Characteristics						
Q_g	Total Gate Charge	$V_{DS}=15V, I_D=5A, V_{GS}=10V$	-	5.2	-	nC
Q_{gs}	Gate-Source Charge		-	0.9	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=15V, R_L=3\Omega, I_D=1A, V_{GEN}=4.5V, R_G=3\Omega$	-	5	-	nS
t_r	Turn-on Rise Time		-	3	-	
$t_{d(off)}$	Turn-off Delay Time		-	16	-	
t_f	Turn-off Fall Time		-	4	-	
• Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-1A$	-	-	-1	V

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



Switching Test Circuit



Switching Waveforms

Typical Characteristics Curves (Ta=25°C, unless otherwise note)

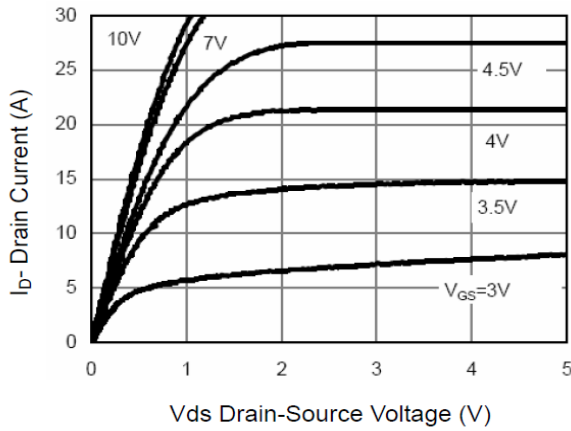


Figure 1 Output Characteristics

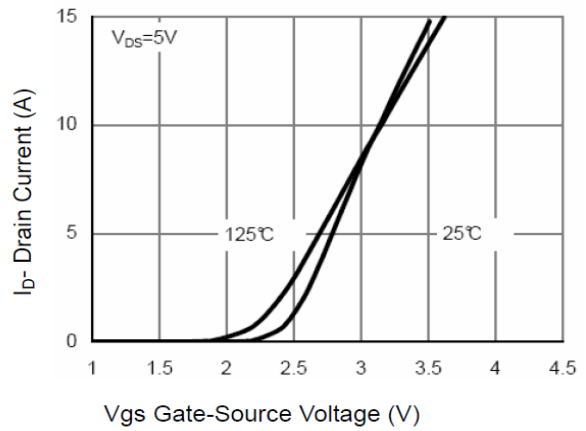


Figure 2 Transfer Characteristics

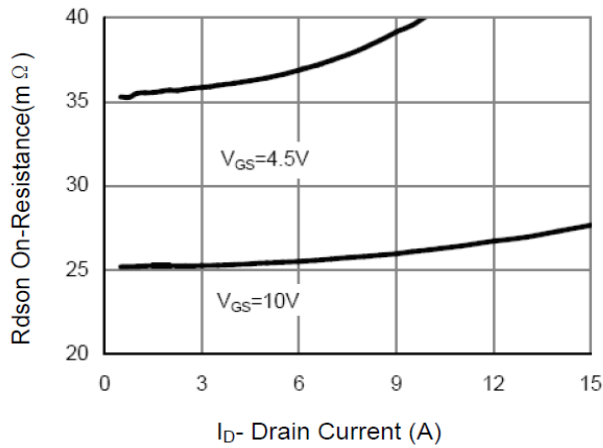


Figure 3 Drain-Source On-Resistance

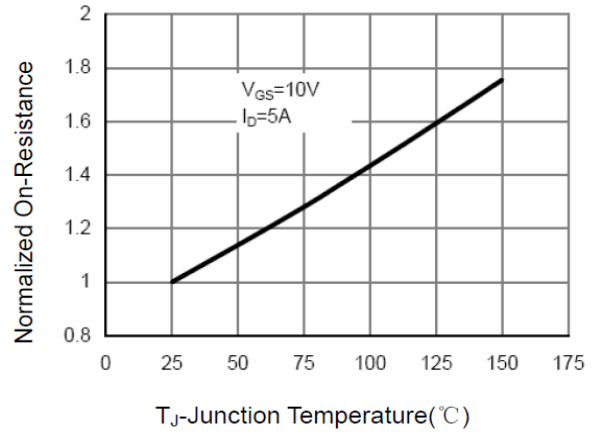


Figure 4 Drain-Source On-Resistance

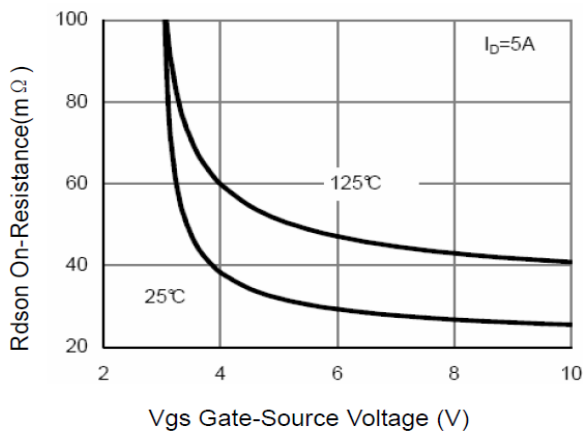


Figure 5 Rdson vs Vgs

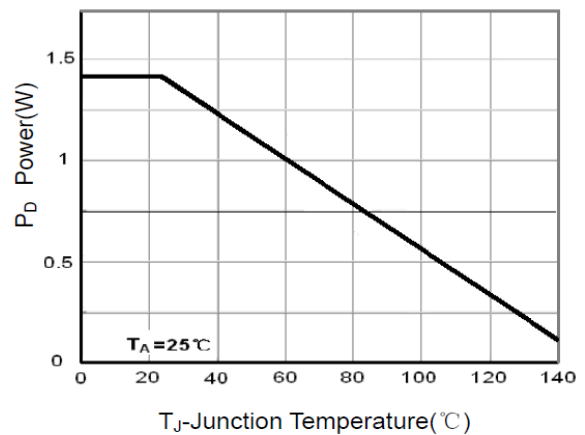


Figure 6 Power Dissipation

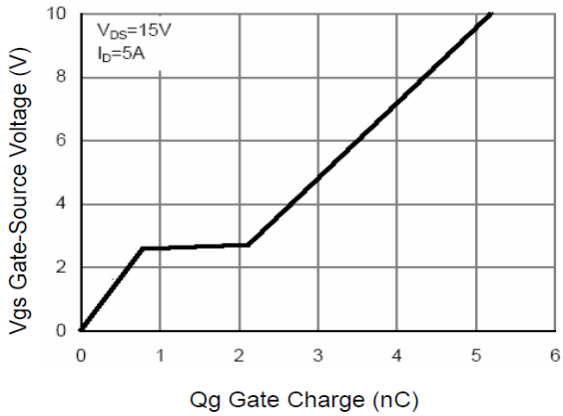


Figure 7 Gate Charge

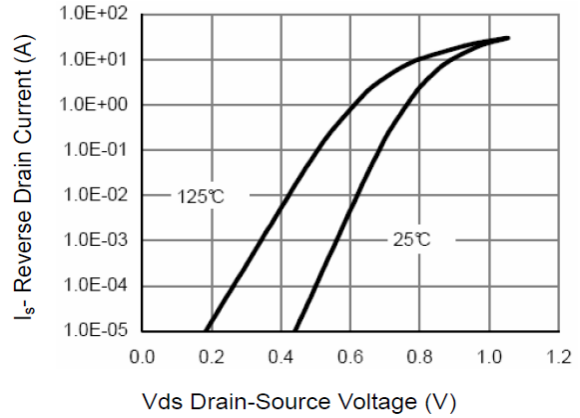


Figure 8 Source- Drain Diode Forward

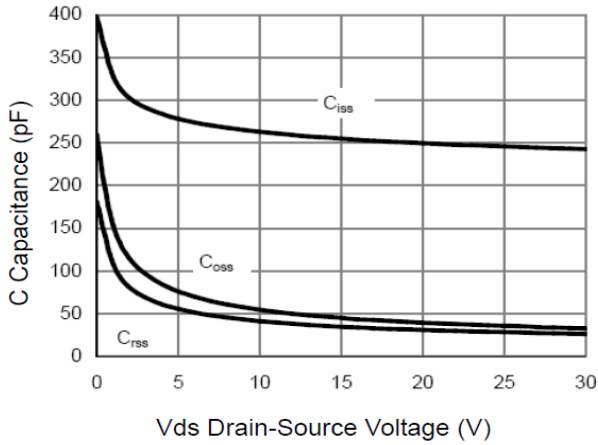


Figure 9 Capacitance vs Vds

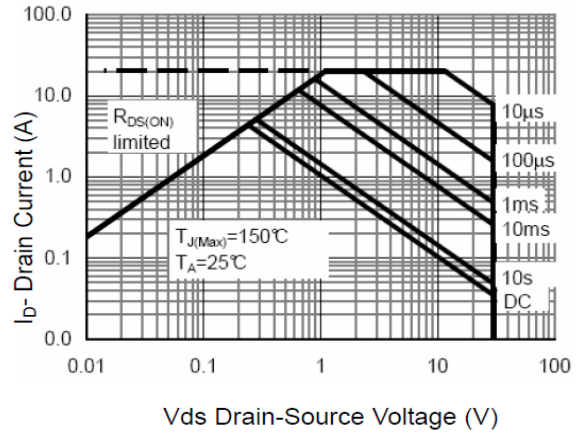


Figure 10 Safe Operation Area

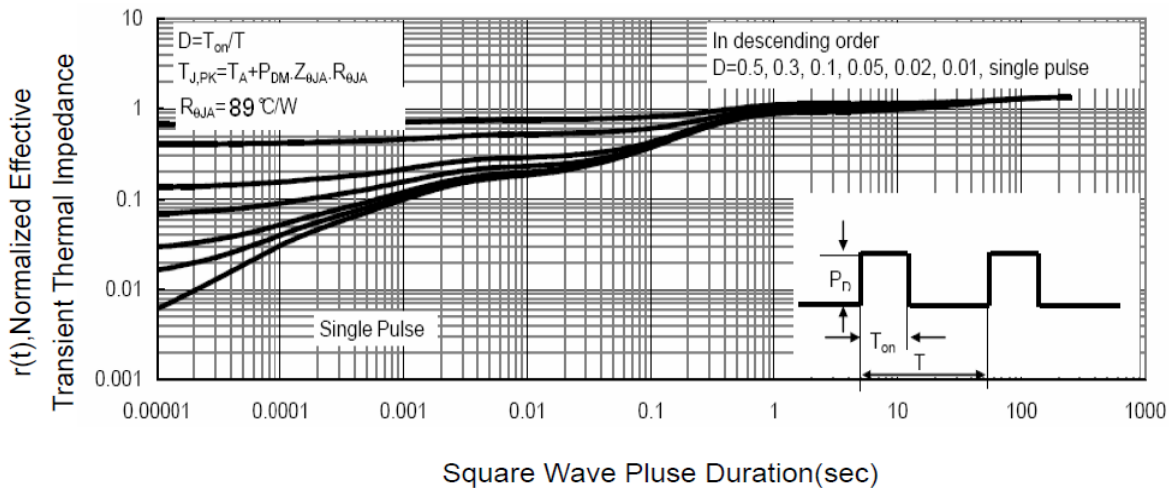
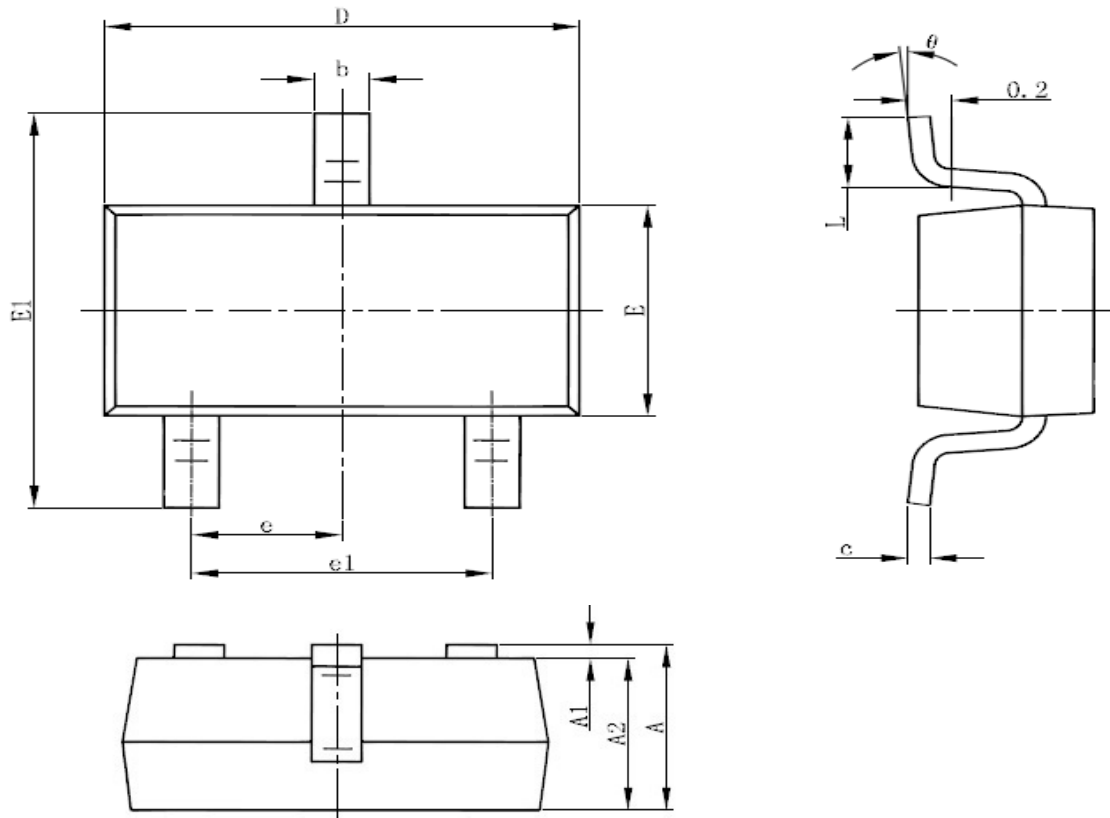


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT23-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.850	1.250	0.033	0.049
A1	0.000	0.100	0.000	0.004
A2	0.7	1.150	0.028	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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