

P-Channel 30V (D-S) MOSFET

V_{DS}	$R_{DS(on)MAX}$	I_D
-30V	0.055Ω@-10V	-4.5A
	0.068Ω@-4.5V	
	0.096Ω@-2.5V	

Features

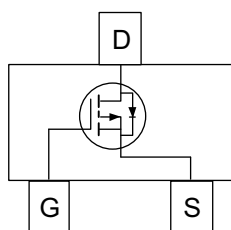
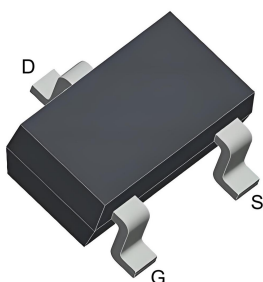
- Low Gate Charge
- RoHS Compliant

Applications

- Load Switch
- Power management

Pin Configuration

SOT23-3L



Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
ECG3401	R1A	7"	8mm	3000pcs

Absolute Maximum Ratings (T_J=25 °C Unless Otherwise Noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Drain Current -Continuous	-4.4	A
I_{DM}	Drain Current - Pulse	-18	A
Power Dissipation, Temperature and Thermal Resistance			
P_D	Power Dissipation	1.5	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient (note1)	100	°C/W
	Thermal Resistance from Junction to Ambient (note2)	140	°C/W
T_J	Junction Temperature	150	°C
T_{stg}	Storage Temperature	-55~+150	°C
T_L	Lead Temperature	260	°C

P-ch MOSFET ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.6	-0.9	-1.4	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.3A$		46	55	m Ω
		$V_{GS}=-4.5V, I_D=-4.0A$		52	68	m Ω
		$V_{GS}=-2.5V, I_D=-1.0A$		64	96	m Ω
Diode forward voltage	V_{SD}	$I_S=-1.0A, V_{GS}=0V$		-0.7	-1.3	V
Dynamic						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$		933	1200	pF
Output Capacitance	C_{oss}			108		
Reverse Transfer Capacitance	C_{rss}			81		
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-4.5V, I_D=-4A$		9.3	12.2	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			3.7		
Gate Resistance	R_g	$f=1MHz$	0.5	1.0	2.0	Ω
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-15V, I_D=-1.0A, V_{GEN}=-10V, R_g=6\Omega$		5.2		ns
Rise Time	t_r			6.8		
Turn-Off Delay Time	$t_{d(off)}$			42		
Fall Time	t_f			15		

MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)

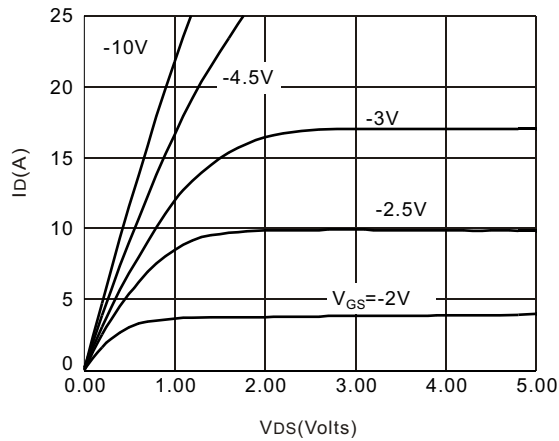


Figure 1: On-Region Characteristics

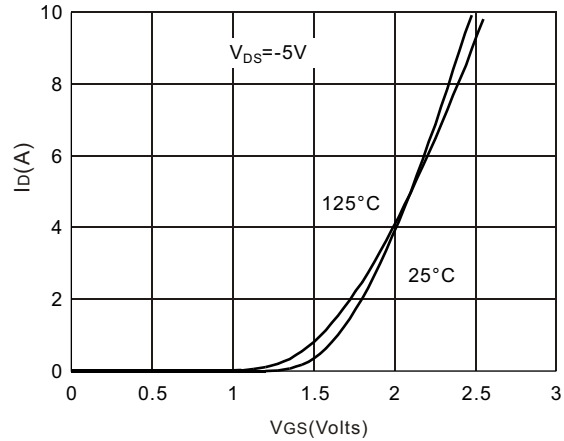


Figure 2: Transfer Characteristics

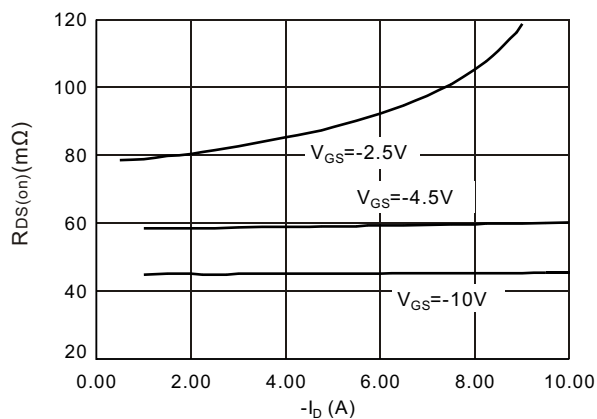


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

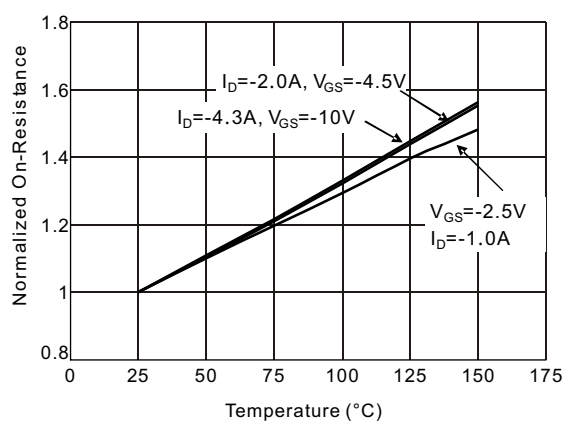


Figure 4: On-Resistance vs. Junction Temperature

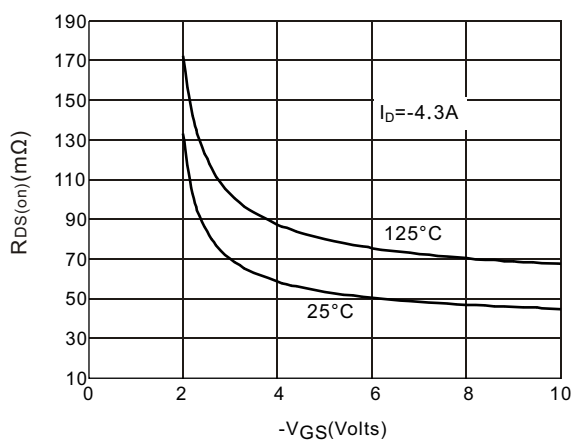


Figure 5: On-Resistance vs. Gate-Source Voltage

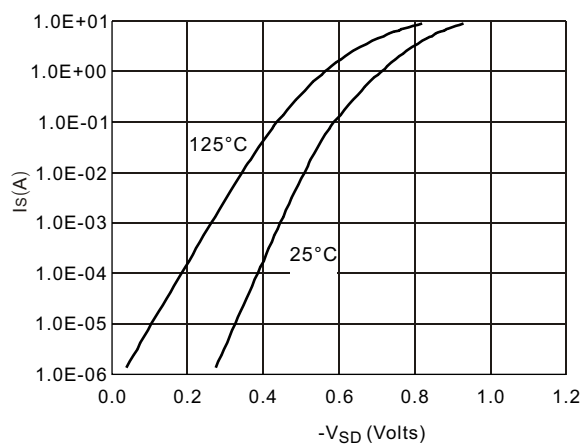


Figure 6: Body-Diode Characteristics

MOSFET TYPICAL CHARACTERISTICS(25°C, unless otherwise noted)

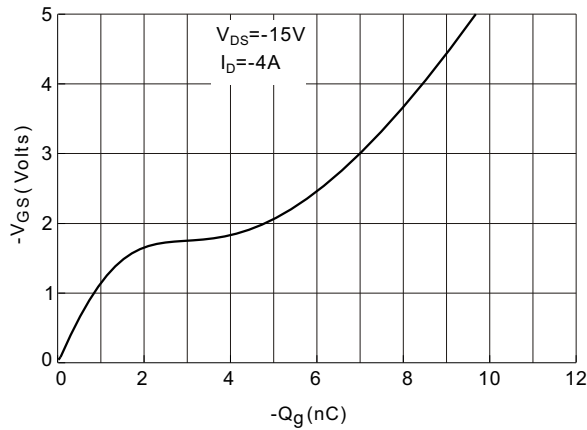


Figure 7: Gate-Charge Characteristics

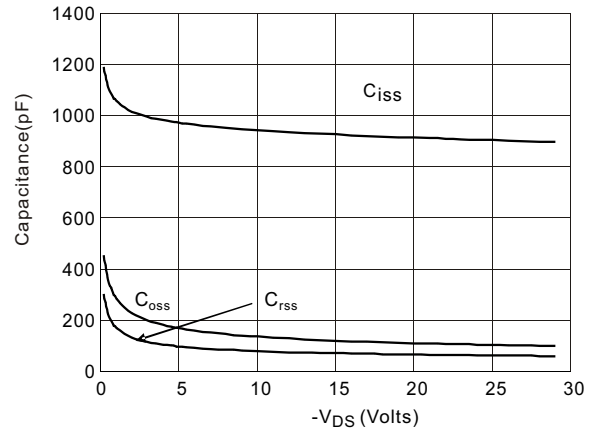


Figure 8: Capacitance Characteristics

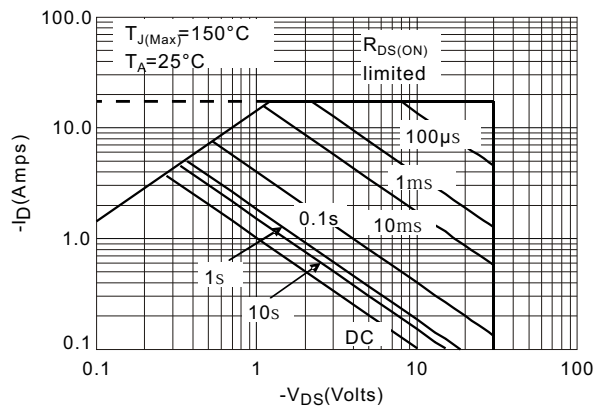


Figure 9: Maximum Forward Biased Safe Operating Area (Note d)

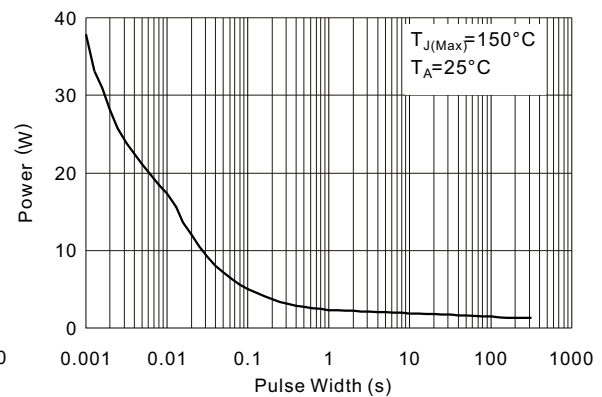


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note d)

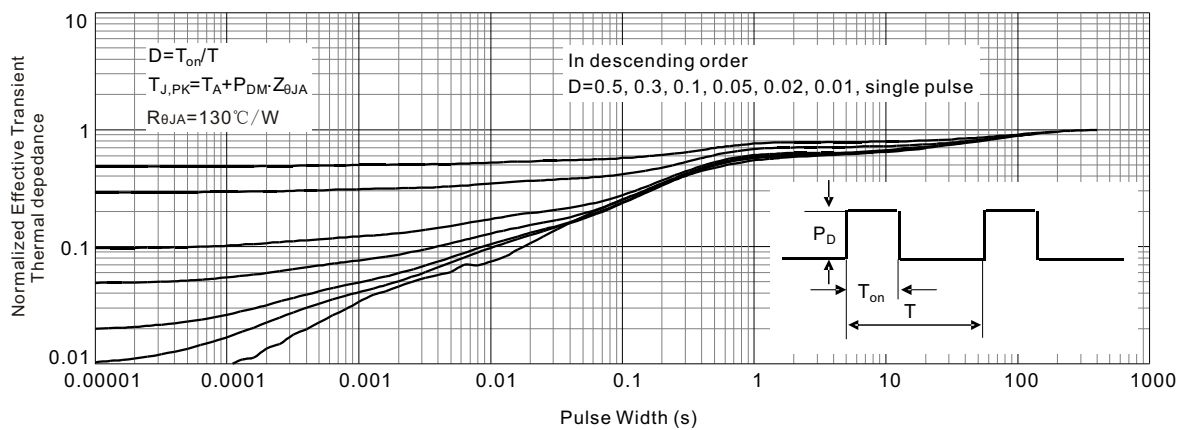
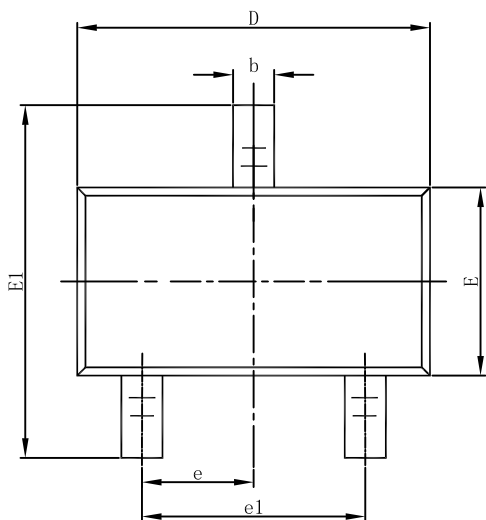


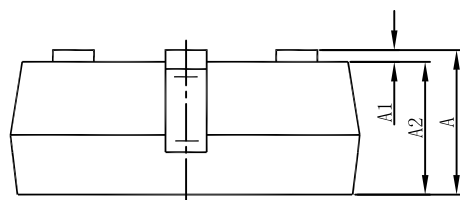
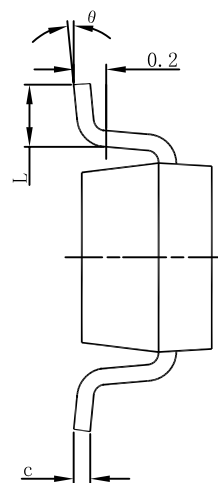
Figure 11: Normalized Maximum Transient Thermal Impedance

Note d: These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with TA=25°C. The SOA curve provides a single pulse rating.

SOT23-3L Package Information



Top View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	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°