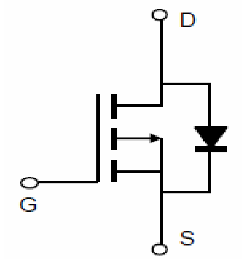
EFM2303A

P-Channel Advanced Power MOSFET

• Product Summary

Part #	V_{DS}	$R_{DS(on).typ}$ (@V_{GS}=10V)	$R_{DS(on).typ}$ (@V_{GS}=4.5V)	I_D
EFM2303A	-30V	75mΩ	90mΩ	-1.9A



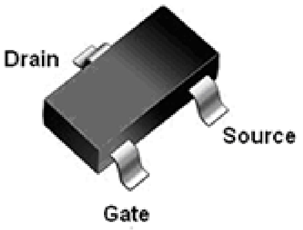
P-Channel MOSFET

• Features

- *Low $R_{DS(on)}$ @V_{GS}=-10V*
- *- 4.5V Logic Level Control*
- *P Channel SOT23-3L Package*
- *Pb−Free, RoHS Compliant*

•Application

- High-side Load Switch
- *Switching Circuits*
- *High Speed line Driver*



SOT23-3L

•Ordering Information:

Part NO.	EFM2303A
Marking	L3****
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

•Absolute Maximum Ratings (T$_C$=25℃)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-1.9	A
Drain Current-Pulsed (Note 1)	I_{DM}	-7	A
Maximum Power Dissipation	P_D	1.4	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

•Thermal Characteristic

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	357	℃/W

● Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250uA	-30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V V_{GS}=0V	--	--	-1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V V_{DS}=0V	--	--	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250uA	-1.0	-1.6	-2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V I_D=-1.9A	--	75	85	mΩ
		V_{GS}=-4.5VI_D=-1.5A	--	90	100	mΩ
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=-15V V_{GS} =0V F=1.0MHz	--	155	--	PF
Output Capacitance	C_{oss}		--	35	--	PF
Reverse Transfer Capacitance	C_{rss}		--	25	--	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V I_D=-1.9A V_{GS}=-10V R_G=1Ω,	--	4	--	nS
Turn-on Rise Time	t_r		--	11	--	nS
Turn-Off Delay Time	$t_{d(off)}$		--	11	--	nS
Turn-Off Fall Time	t_f		--	8	--	nS
Total Gate Charge	Q_g	V_{DS}=-15V I_D=-1.9A V_{GS}=-10V	--	4	--	nC
Gate-Source Charge	Q_{gs}		--	0.6	--	nC
Gate-Drain Charge	Q_{gd}		--	1	--	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V I_S=-1.9A	--	-0.84	-1.2	V
Diode Forward Current (Note 2)	I_S		--	--	-1.9	A

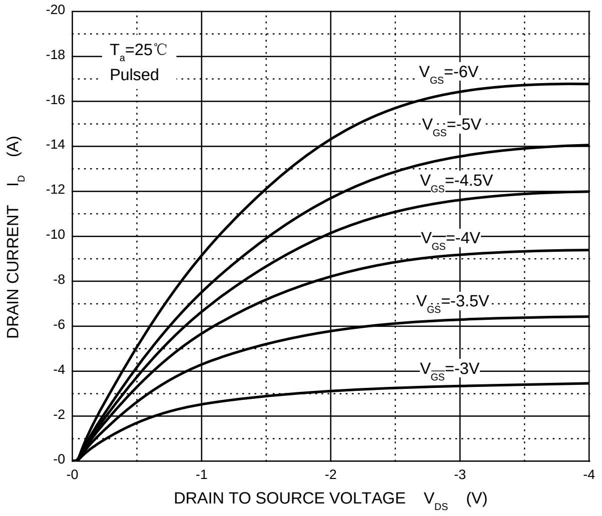
Notes:

① Pulse width limited by maximum allowable junction temperature

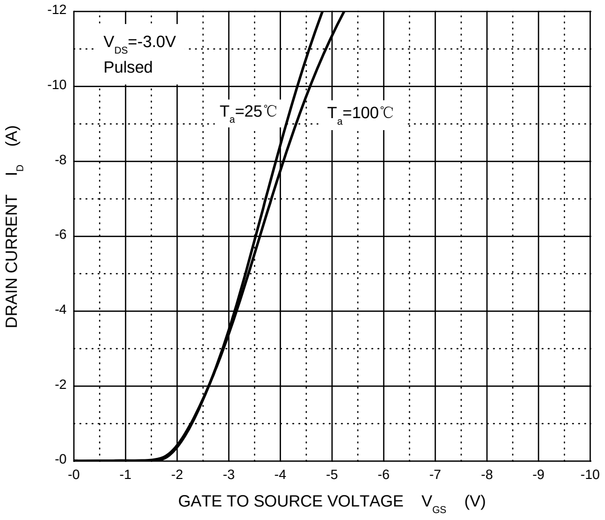
②Pulse test ; Pulse width≤300µs, duty cycle≤2%.

• Typical Characteristics

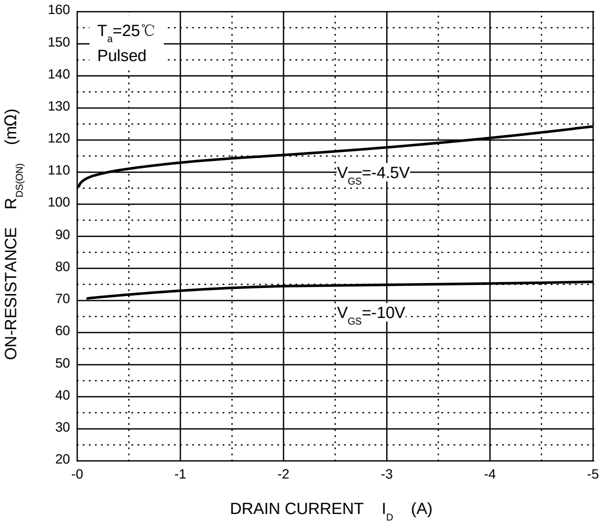
Output Characteristics



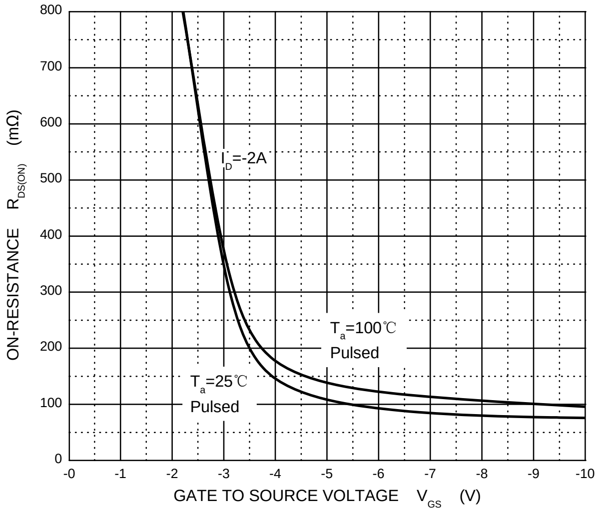
Transfer Characteristics



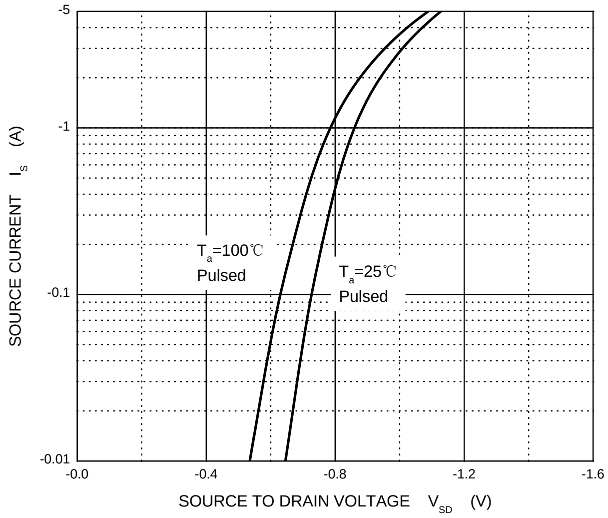
$R_{DS(ON)}$ —— I_D



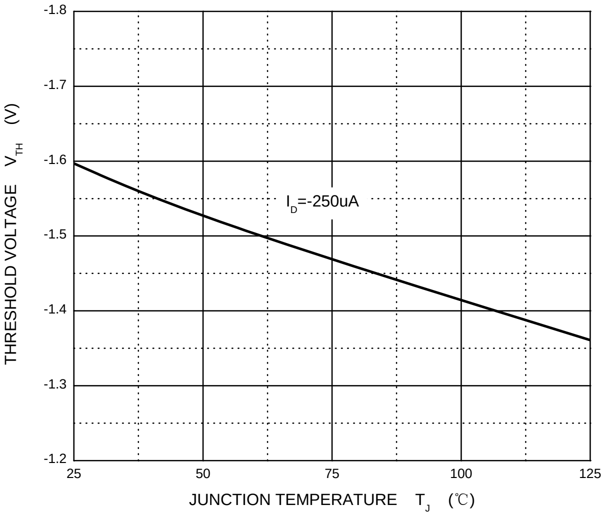
$R_{DS(ON)}$ —— V_{GS}



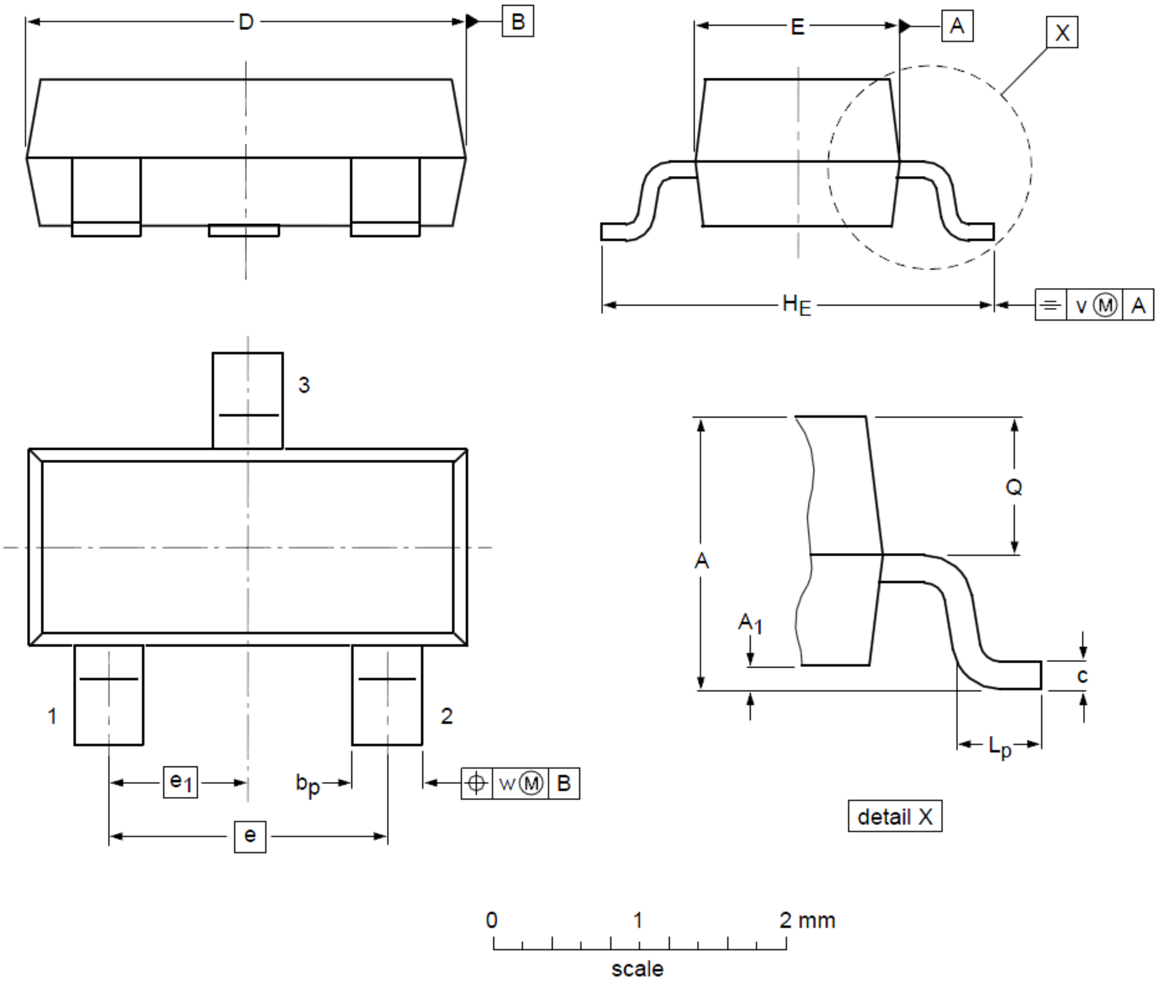
I_S —— V_{SD}



Threshold Voltage



SOT23-3L Package Outline Dimensions



DIMENSIONS (unit : mm)

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	**A_1**	0.01	0.05	0.10
b_p	0.30	0.42	0.50	**c**	0.08	0.13	0.15
D	2.80	2.92	3.00	**E**	1.20	1.33	1.40
e	--	1.90	--	**e_1**	--	0.95	--
H_E	2.25	2.40	2.55	**L_p**	0.30	0.42	0.50
Q	0.45	0.49	0.55	**v**	--	0.20	--
w	--	0.10	--				