



MK6506P

Dual P-Channel 30-V(D-S) MOSFET

V(BR)DSS	RDS(on)MAX	ID
-30 V	170mΩ@ -10V	-1.8A
	280mΩ@ -4.5V	

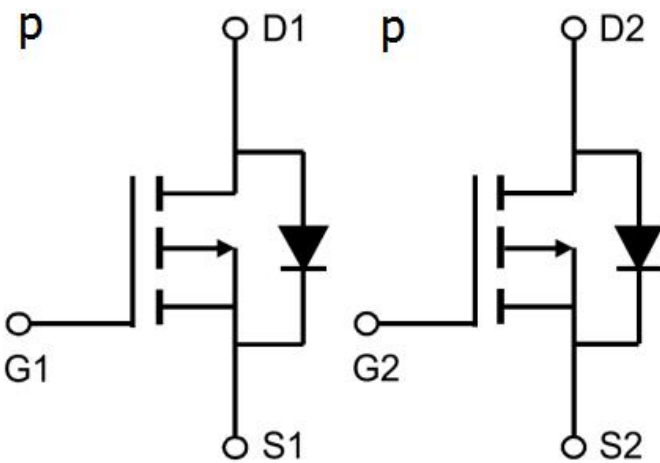
FEATURE:

- ※ TrenchFET Power MOSFET
- ※ Fast switching speed

MARKING:

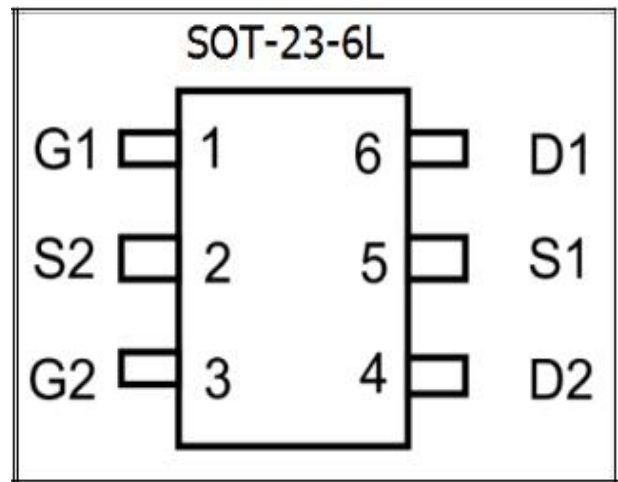
506 f

Equivalent Circuit:



General Description:

These P-Channel logic level MOSFETs are produced using Fairchild Semiconductor's advanced PowerTrench process that has been especially tailored to minimize on-state resistance and yet maintain low gate charge for superior switching performance.



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	-30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	-1.8	A
Pulsed Diode Current	IDM	-10	
Continuous Source-Drain Current(Diode Conduction)	IS	-0.8	
Power Dissipation	PD	1.15	W
Thermal Resistance from Junction to Ambient (t≤10s)	RθJA	130	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C



MOSFET ELECTRICAL CHARACTERISTICS

Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

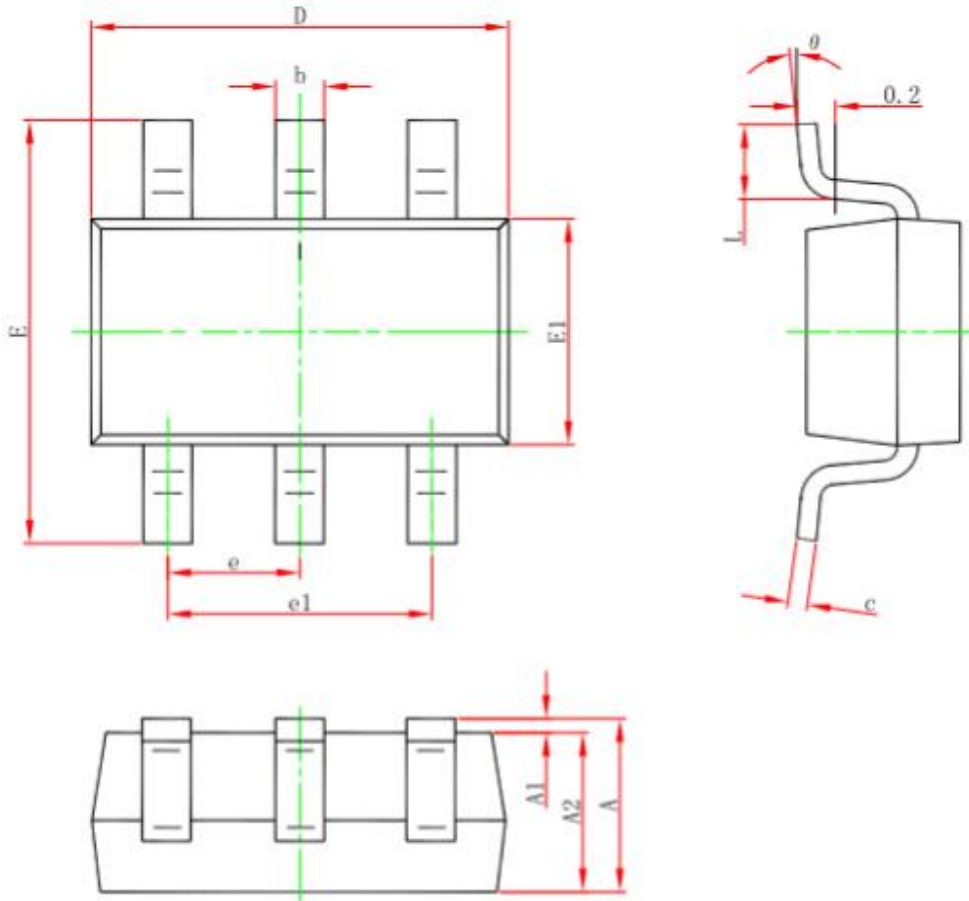
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = -250μA	-30			V
Gate-source threshold voltage	VGS(th)	VDS = VGS, ID = -250μA	-1		-3	V
Gate-body leakage current	IGSS	VDS = 0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -24V, VGS = 0V			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -10V, ID = -2.3A		83	170	mΩ
		VGS = -4.5V, ID = -2A		108	280	mΩ
Forward transconductance	gfs	VDS = -5V, ID = -1.8A		3		S
Diode forward voltage	VSD	IS = -1A, VGS = 0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	IS				-0.8	A
Dynamic						
Input capacitance	Ciss	VDS = -15V, VGS = 0V, f=1MHz		190		pF
Output capacitance	Coss			70		pF
Reverse transfer capacitance	Crss			30		pF
Total gate charge	Qg	VDS = -15V, VGS = -4.5V, ID = -2A		2.3		nC
Gate-source charge	Qgs			1		nC
Gate-drain charge	Qgd			0.8		nC
Gate resistance	Rg	f=1MHz		6		Ω
Switching						
Turn-on delay time	td(on)	VDS = -15V, RL = 4.5Ω, ID = -2A, VGS = -10V, Rg = 3Ω		7		ns
Rise time	tr			8		ns
Turn-off delay time	td(off)			14		ns
Fall time	tf			3		ns
Body Diode Reverse Recovery Time	Trr	IF = -2A, dI/dt = 100A/μs		15		ns
Body Diode Reverse Recovery Charge	Qrr	IF = -2A, dI/dt = 100A/μs		8		nC

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 10 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.



SOT-23-6L PACKAGE OUTLINE DIMENSIONS:



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
E1	1.500	1.700	0.059	0.067
E	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°



Typical Electrical Thermal Characteristics:

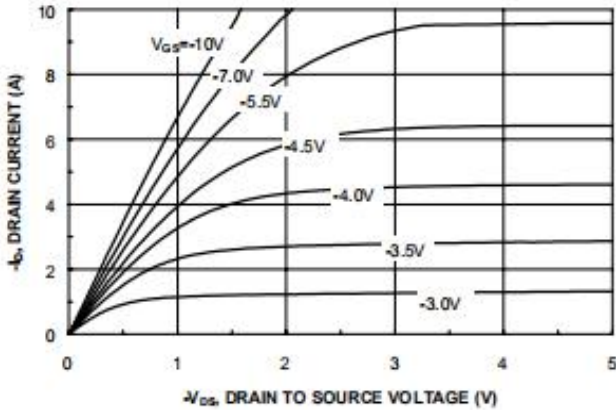


Figure 1. On-Region Characteristics.

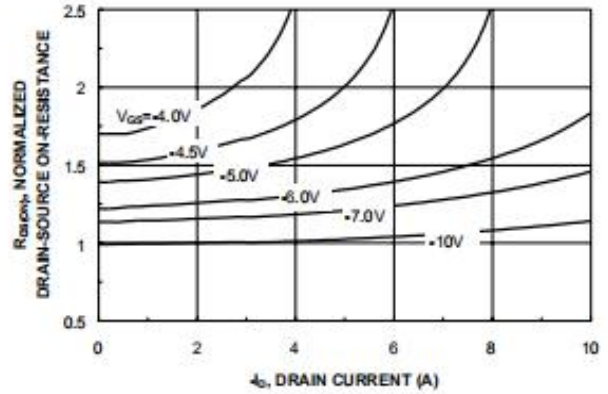


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

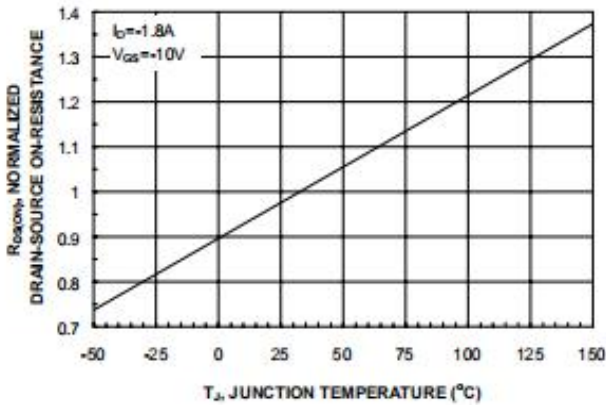


Figure 3. On-Resistance Variation with Temperature.

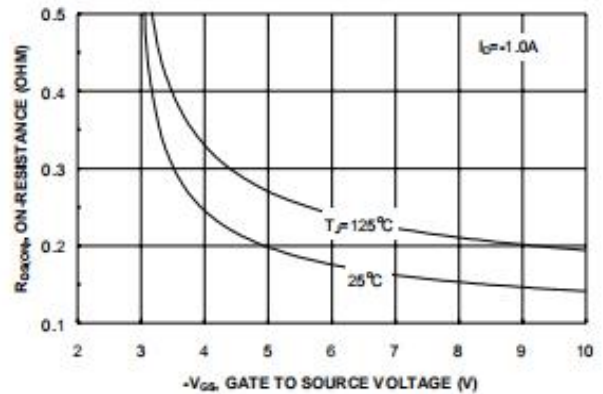


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

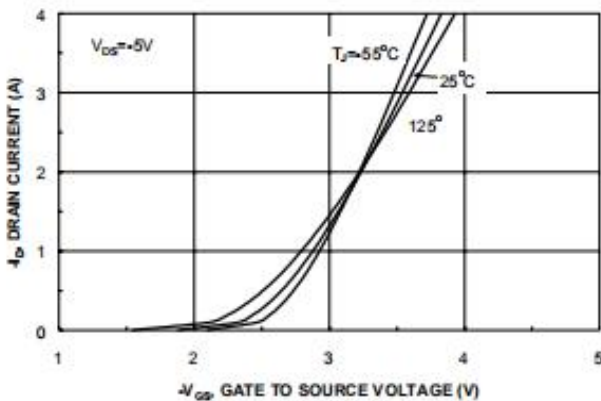


Figure 5. Transfer Characteristics.

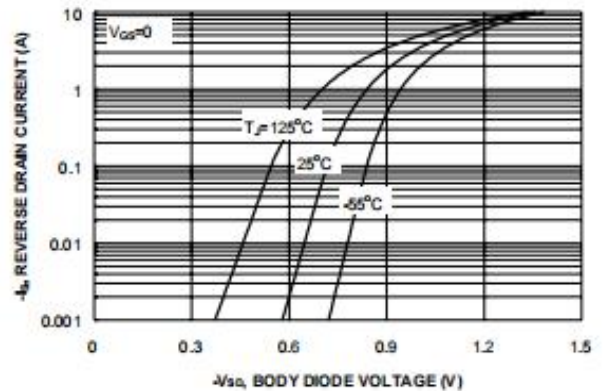


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.



Typical Electrical Thermal Characteristics:

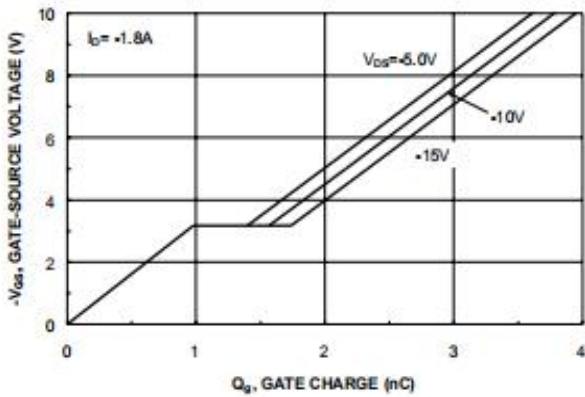


Figure 7. Gate-Charge Characteristics.

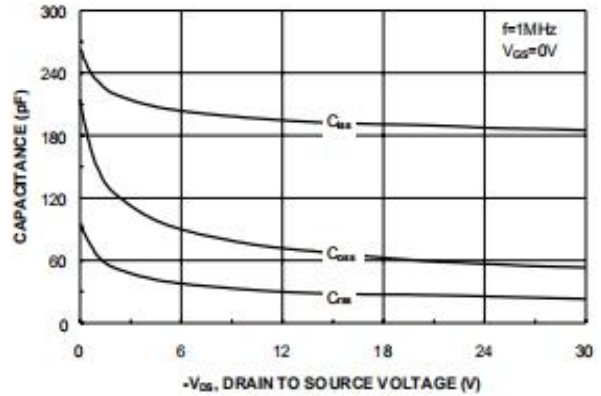


Figure 8. Capacitance Characteristics.

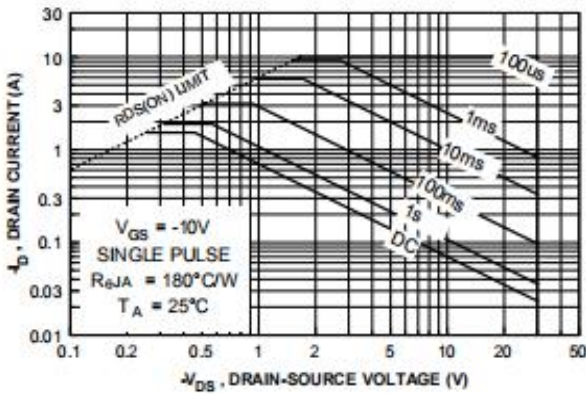


Figure 9. Maximum Safe Operating Area.

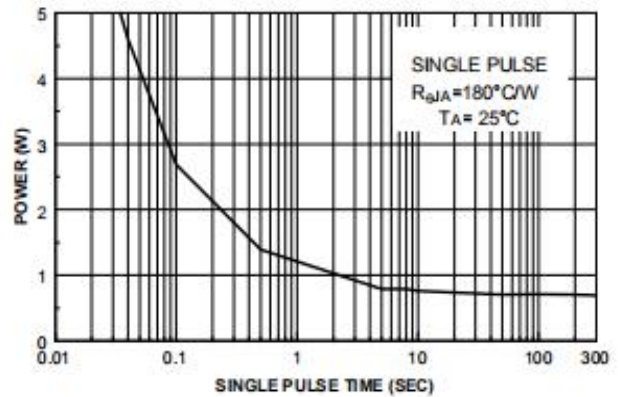


Figure 10. Single Pulse Maximum Power Dissipation.

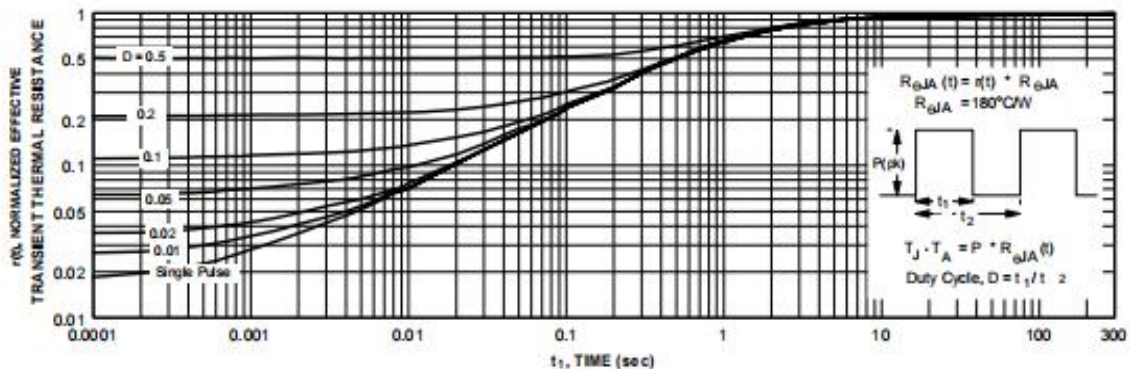


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in Note 1c. Transient thermal response will change depending on the circuit board design.