

50V P-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-50V	1.7Ω@-10V	-0.13A
	1.9Ω@-5V	

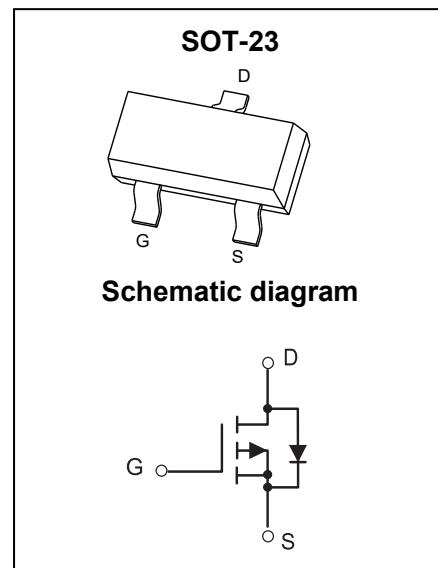
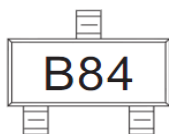
Feature

- Trench Technology MOSFET
- Low Gate Charge

Application

- Load Switch for Portable Devices
- DC/DC Converter

MARKING:

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	-50	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current ¹	I_D	-0.13	A
Pulsed Drain Current ²	I_{DM}	-1.2	A
Power Dissipation ⁴	P_D	300	mW
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

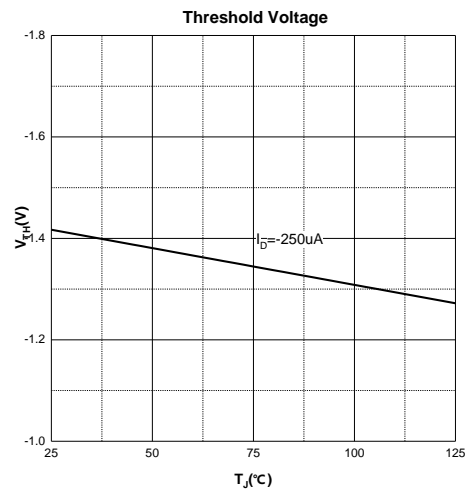
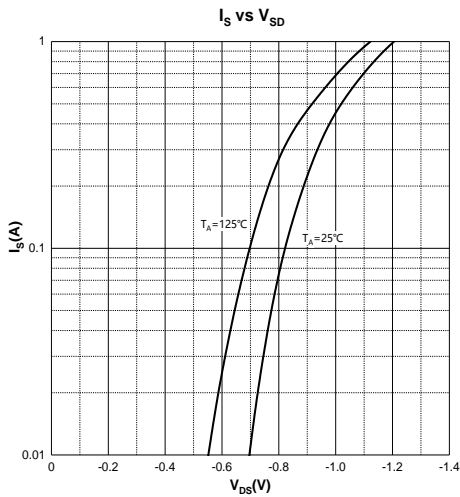
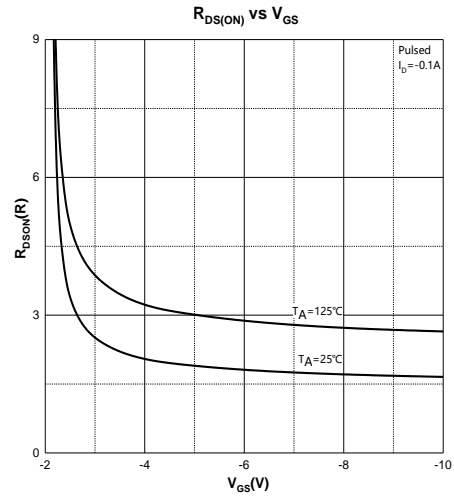
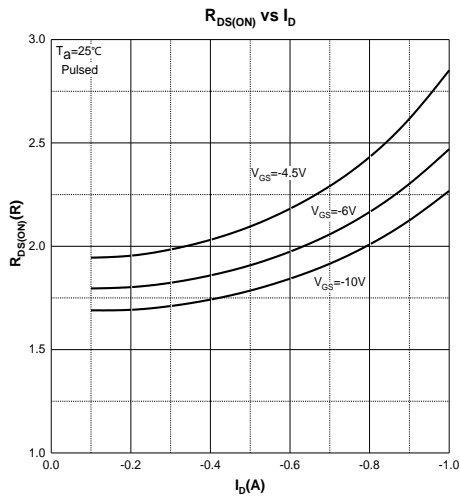
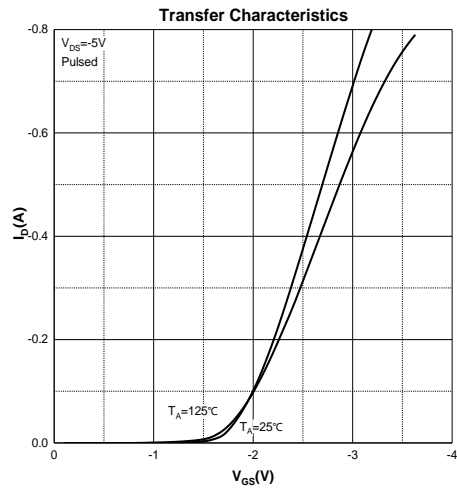
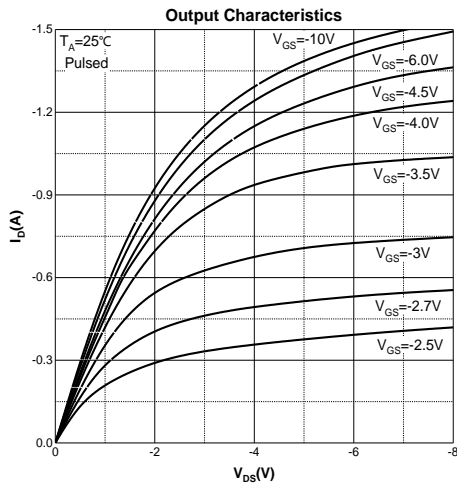
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain – Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-50			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -50V, V _{GS} = 0V			-1	μA
Gate – Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.9	-1.4	-2.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -0.1A		1.7	5	Ω
		V _{GS} = -4.5V, I _D = -0.1A		1.9	6	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -25V, V _{GS} = 0V, f = 1MHz		32.9		pF
Output Capacitance	C _{oss}			5.48		
Reverse Transfer Capacitance	C _{rss}			3.31		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		73		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -10V, I _D = -0.1A		0.62		nC
Gate-source Charge	Q _{gs}			0.13		
Gate-drain Charge	Q _{gd}			0.11		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -30V, V _{GS} = -10V, R _L = 110Ω, R _G = 50Ω		11		ns
Turn-on Rise Time	t _r			6		
Turn-off Delay Ttime	t _{d(off)}			19		
Turn-off Fall Ttime	t _f			8		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -0.1A			-1.2	V

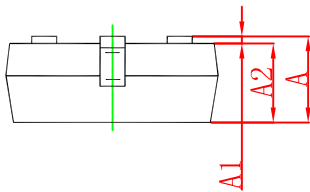
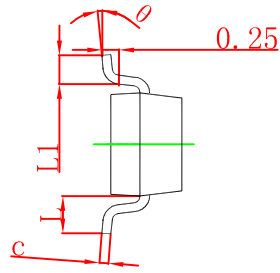
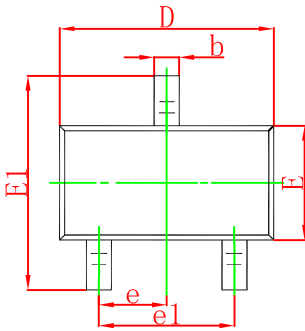
Notes :

- 1.The maximum current rating is limited by Chip.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics



SOT-23 Package Information



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°