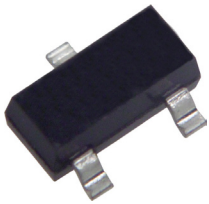
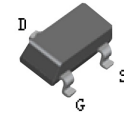
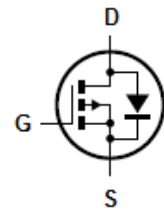


P-Channel MOSFET Transistor



Features

- Voltage Controlled P-Channel Small signal switch
- High Density Cell Design for Low $R_{DS(ON)}$
- High Saturation Current
- Lead Free



SOT-23

Applications

- Line current interrupter in telephone sets
- Relay, high speed and line transformer drivers

Maximum Ratings

Ratings at 25°C unless otherwise specified.

Parameter	Symbol	Value	Units
Drain-source voltage	V_{DS}	-50	V
Gate-source voltage	V_{GSO}	± 20	V
Drain current continuous (Note 1) Pulse	I_D	-130 -520	mA
Power dissipation (Note 1)	P_D	0.36	W
Derate above 25°C		2.9	mW/°C
Thermal resistance, Junction-to-ambient	$R_{\theta JA}$	350	°C/W
Operating junction and storage temperature	T_J, T_{stg}	-55 to +150	°C
Maximum Lead Temperature For Soldering Purposes, 1/16" from case for 10 seconds	T_L	300	°C

Note 1 $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

Electrical Characteristics

Ratings at 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-50	-	-	V
Breakdown voltage temperature coefficient	$\Delta V_{(BR)DSS} / \Delta T_J$	$I_D = -250 \mu A$, Referenced to 25°C	-	-48	-	mV/°C
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-1mA$	-0.8	-1.7	-2	V
Gate threshold voltage temperature coefficient	$\Delta V_{GS(th)} / \Delta T_J$	$I_D = -1mA$, Referenced to 25°C	-	3	-	mV/°C
Gate-body leakage	I_{GSS}	$V_{DS}= 0V, V_{GS}= \pm 20V$	-	-	± 100	nA
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-50V, V_{GS}=0V$	-	-	-15	μA
		$V_{DS}=-50V, V_{GS}=0V, T_J= 125^\circ C$	-	-	-60	μA
Drain-source on-resistance	$R_{DS(ON)}$	$V_{GS} = -5V, I_D = -0.1A$	-	1.2	10	Ω
		$V_{GS} = -5V, I_D = -0.1A, T_J=125^\circ C$	-	1.9	17	

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
On-state drain current	$I_{D(on)}$	$V_{GS}=-5V, V_{DS}=-10V$	-0.6	-	-	A
Forwards transfer admittance	$ y_{fs} $	$V_{DS}=-25V, I_D=-0.1A$	0.05	0.6	-	S
Input capacitance	C_{ISS}	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$	-	73	-	pF
Output capacitance	C_{OSS}		-	10	-	
Reverse transfer capacitance	C_{RSS}		-	5	-	
Gate resistance	R_G	$V_{GS}=-15mV, f=1MHz$	-	9	-	Ω
Turn-on delay time	$t_{D(ON)}$	$V_{DD}=-30V, I_D=-0.27A, V_{GS}=-10V, R_{GEN}=6\Omega$	-	2.5	5	ns
Turn-on rise time	t_r		-	6.3	13	
Turn-off delay time	$t_{D(OFF)}$		-	10	20	
Turn-off fall time	t_f		-	4.8	9.6	
Total gate charge	Q_g	$V_{DS}=-25V, I_D=-0.1A, V_{GS}=-5V$	-	0.9	1.3	nC
Gate-source charge	Q_{gs}		-	0.2	-	
Gate-drain charge	Q_{gd}		-	0.3	-	
Maximum continuous drain-source diode forward current	I_S	-	-	-	-0.13	A
Drain-source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=-0.26A$ (Note 2)	-	-0.8	-1.4	V
Diode reverse recovery time	t_{rr}	$I_F=-0.1A$ $di_F/dt=100A/\mu s$ (Note 2)	-	10	-	nS
Diode reverse recovery charge	Q_{rr}		-	3	-	nC

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

Typical Characteristics:

$T_A = 25^\circ C$ unless otherwise specified

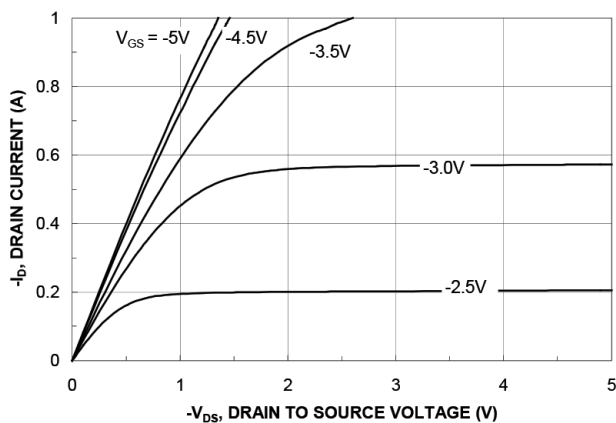


Figure 1. On-Region Characteristics.

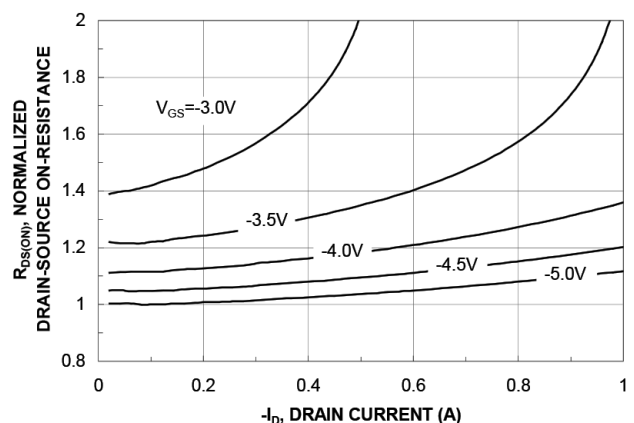


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

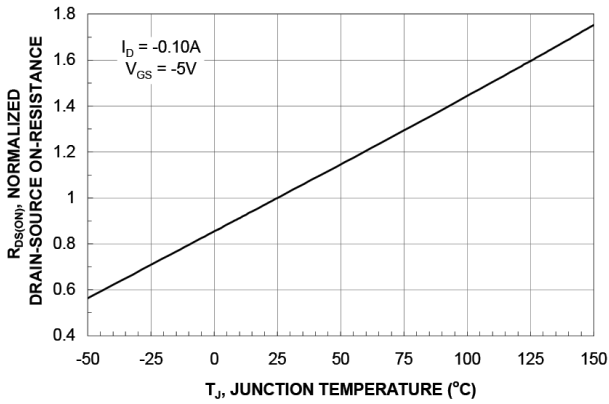


Figure 3. On-Resistance Variation with Temperature.

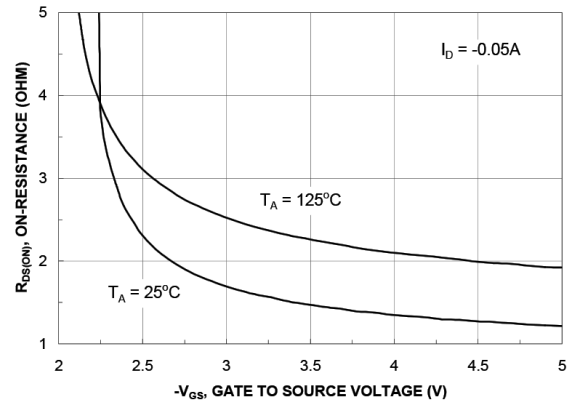


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

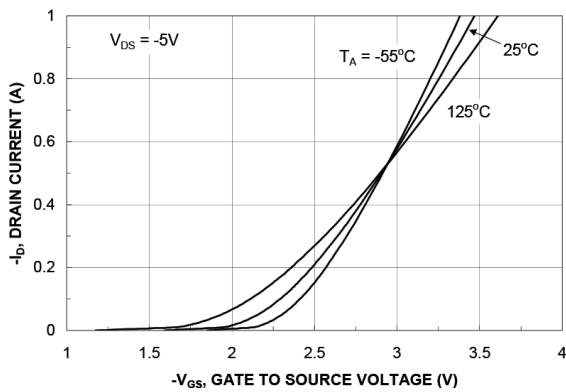


Figure 5. Transfer Characteristics.

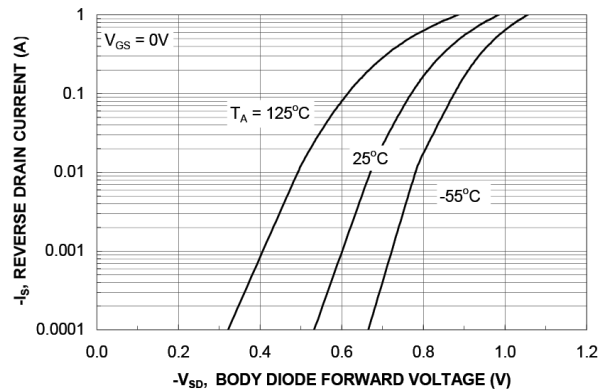


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

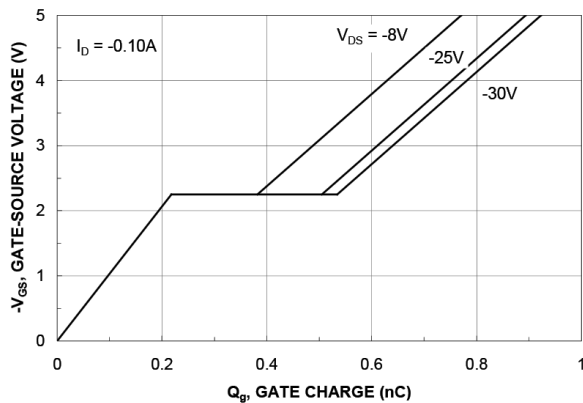


Figure 7. Gate Charge Characteristics.

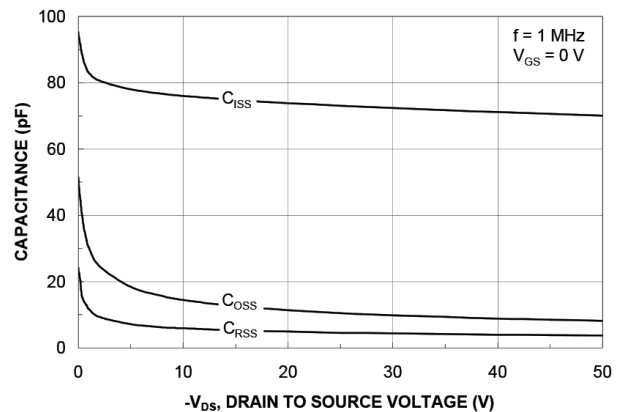


Figure 8. Capacitance Characteristics.

P-Channel MOSFET Transistor

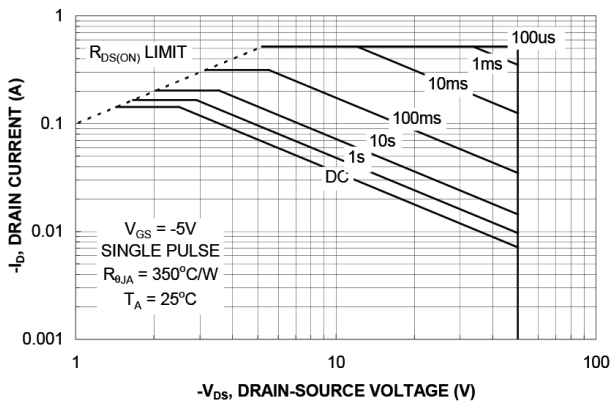


Figure 9. Maximum Safe Operating Area.

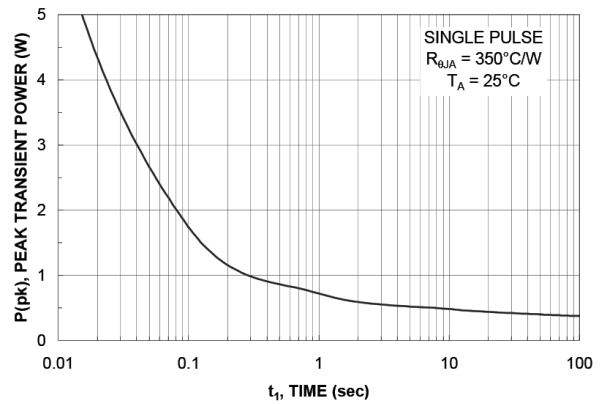


Figure 10. Single Pulse Maximum Power Dissipation.

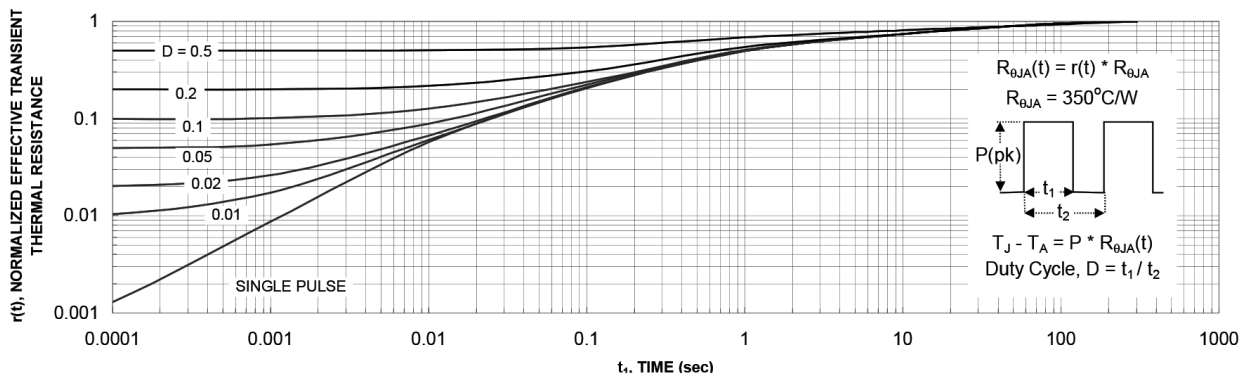
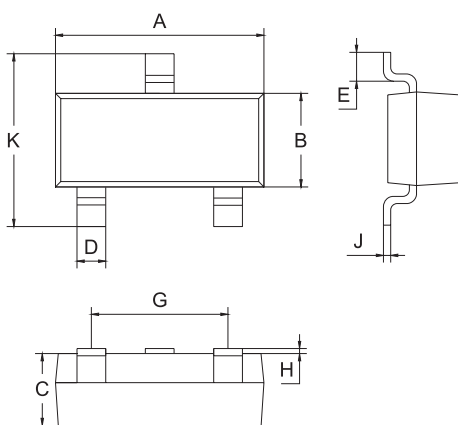


Figure 11. Transient Thermal Response Curve.

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

Package Outline:

Plastic surface mounted package



SOT-23		
Dim.	Min.	Max.
A	2.7	3.1
B	1.1	1.5
C	1 Typ.	
D	0.4 Typ.	
E	0.35	0.48
G	1.8	2
H	0.02	0.1
J	0.1 Typ.	
K	2.2	2.6

Dimensions : Millimetres

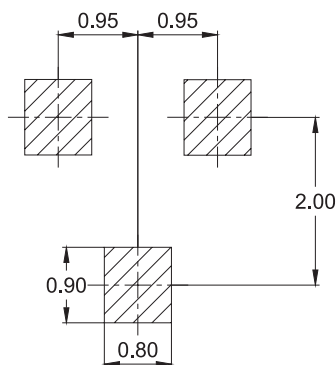
www.element14.com
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P-Channel MOSFET Transistor



Soldering Footprint:



Dimensions : Millimetres

Package Information:

Device	Package	Shipping	Marking Code
BSS84-7-F	SOT-23	3,000 / Tape & Reel	SP

Part Number Table

Description	Part Number
MOSFET Transistor, P-Channel, -130mA, -50V, 1.2Ω, -5V, -1.7V	BSS84-7-F

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