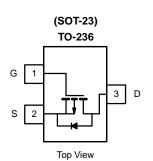
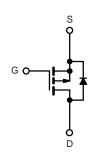


P-Channel 30 V (D-S) MOSFET

PRODUC	CT SUMMARY		
V _{DS} (V)	$R_{DS(on)}$ (Ω) Typ.	I _D (A) ^a	Q _g (Typ.)
	0.046 at V _{GS} = - 10 V	- 5.6	
- 30	0.049 at V _{GS} = - 6 V	- 5	11.4 nC
	0.054 at V _{GS} = - 4.5 V	-4.5	





P-Channel MOSFET

FEATURES

- TrenchFET® Power MOSFET
- 100 % R_g Tested



APPLICATIONS

- For Mobile Computing
 - Load Switch
 - Notebook Adaptor Switch
 - DC/DC Converter

ABSOLUTE MAXIMUM RATIN	IGS (T _A = 25 °C	, unless othe	rwise noted)	
Parameter		Symbol	Limit	Unit
Drain-Source Voltage	Drain-Source Voltage		- 30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current (T _J = 150 °C)	T _C = 25 °C		- 5.6	
	T _C = 70 °C	1 , [- 5.1	
	T _A = 25 °C		- 5.4 ^{b,c}	
	T _A = 70 °C	1	- 4.3 ^{b,c}	A
Pulsed Drain Current (t = 100 μs)		I _{DM}	- 18	
Continous Source-Drain Diode Current	T _C = 25 °C	l _a	- 2.1	
	T _A = 25 °C	I _S	- 1 ^{b,c}	
	T _C = 25 °C		2.5	
Maximum Power Dissipation	T _C = 70 °C	1 , [1.6	w
	T _A = 25 °C	P _D	1.25 ^{b,c}	VV
	T _A = 70 °C	1	0.8 ^{b,c}	
Operating Junction and Storage Temperature	e Range	T _J , T _{stg}	- 55 to 150	°C

THERMAL RESISTANCE RATINGS								
Parameter		Symbol	Typical	Maximum	Unit			
Maximum Junction-to-Ambient ^{b,d}	t ≤ 5 s	R _{thJA}	75	100	°C/W			
Maximum Junction-to-Foot (Drain)	Steady State	R _{thJF}	40	50	7 - 0,700			

Notes:

- a. Based on T_C = 25 °C. b. Surface mounted on 1" x 1" FR4 board.
- c. t = 5 s.
- d. Maximum under steady state conditions is 166 °C/W.



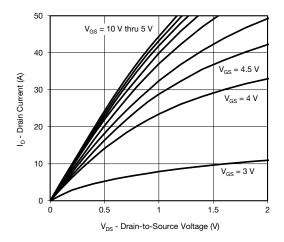
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static				·	•	•
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 \text{ V}, I_D = -250 \mu\text{A}$	- 30			V
V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	J 250 A		- 19		> //00
V _{GS(th)} Temperature Coefficient	$\Delta V_{GS(th)}/T_J$	I _D = - 250 μA		4		mV/°
Gate-Source Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_{D} = -250 \mu A$	- 0.5		- 2.0	V
Gate-Source Leakage	I _{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
		V _{DS} = - 30 V, V _{GS} = 0 V			- 1	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = - 30 V, V _{GS} = 0 V, T _J = 55 °C			- 5	μA
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \le -5 \text{ V}, V_{GS} = -10 \text{ V}$	- 2.5			Α
	(-)	V _{GS} =- 10 V, I _D = - 4.4 A		0.046		
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} =- 6 V, I _D = - 4 A		0.049		Ω
	(,	V _{GS} =- 4.5 V, I _D = - 3.6 A		0.054		
Forward Transconductance ^a	9 _{fs}	V _{DS} = - 15 V, I _D = - 3.4 A		18		S
Dynamic ^b		50 5			ļ	ļ .
Input Capacitance	C _{iss}			1295		1
Output Capacitance	C _{oss}	V _{DS} = - 15 V, V _{GS} = 0 V, f = 1 MHz		150		pF
Reverse Transfer Capacitance	C _{rss}	1		130		
Treverse transier Capacitance	rss	$V_{DS} = -15 \text{ V}, V_{GS} = -10 \text{ V}, I_{D} = -5.4 \text{ A}$		24	36	
Total Gate Charge	Q_g	V _{DS} = 10 v, v _{GS} = 10 v, l _D = 0.17v		11.4	17	nC
Gate-Source Charge	Q _{gs}	V _{DS} = - 15 V, V _{GS} = - 4.5 V, I _D = - 5.4 A		3.4	.,	
Gate-Drain Charge	Q _{gd}	VDS = 10 V, VGS = 1.0 V, ID = 0.17X		3.8		
Gate Resistance	R _g	f = 1 MHz	1.5	7.7	15.4	Ω
Turn-On Delay Time	t _{d(on)}	1 - 1 1011 12	1.0	13	20	
Rise Time	t _r	$V_{DD} = -15 \text{ V}, R_{1} = 3.5 \Omega$		4	8	
Turn-Off Delay Time	t _{d(off)}	$I_D \cong -4.3 \text{ A}, V_{GEN} = -10 \text{ V}, R_q = 1 \Omega$		38	57	
Fall Time	t _f	D - , GLN - , g		6	12	
Turn-On Delay Time	t _{d(on)}			28	42	ns
Rise Time	t _r	$V_{DD} = -15 \text{ V}, R_1 = 3.5 \Omega$		16	24	
Turn-Off Delay Time		$I_{D} \cong -4.3 \text{ A}, V_{GEN} = -4.5 \text{ V}, R_{g} = 1 \Omega$		30	45	
Fall Time	t _{d(off)}	D = 1.0 / 1, VGEN = 1.0 V, Ng = 1.22		10	20	
Drain-Source Body Diode Characteristic	· · · · · · · · · · · · · · · · · · ·			10	20	
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			- 2.1	
Pulse Diode Forward Current (t = 100 µs)	I _{SM}	10-20-0			- 80	Α
` ' '	V _{SD}	I _S = - 4.3 A, V _{GS} = 0 V		- 0.8	- 1.2	V
Body Diode Voltage		18 7.0 A, VGS - 0 V				
Body Diode Reverse Recovery Time	t _{rr}			15	23	ns
Body Diode Reverse Recovery Charge	Q _{rr}	$I_F = -4.3 \text{ A}, \text{ dI/dt} = 100 \text{ A/}\mu\text{s}, T_J = 25 ^{\circ}\text{C}$		7	14	nC
				8	1	ns

Notes

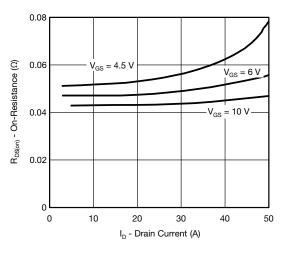
- a. Pulse test; pulse width $\leq 300~\mu s,$ duty cycle $\leq 2~\%.$
- b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

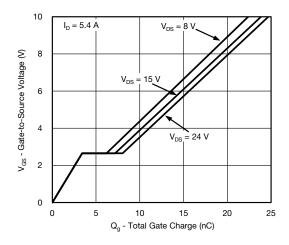




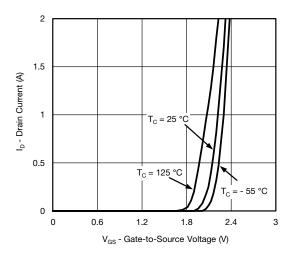
Output Characteristics



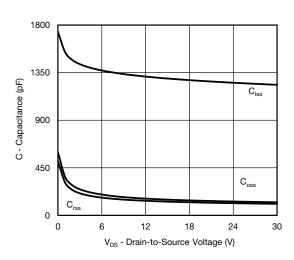
On-Resistance vs. Drain Current



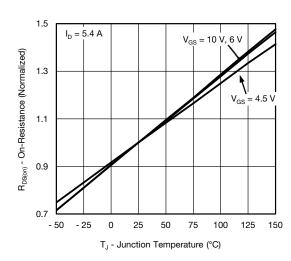
Gate Charge



Transfer Characteristics

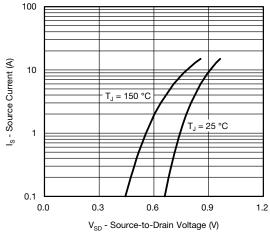


Capacitance

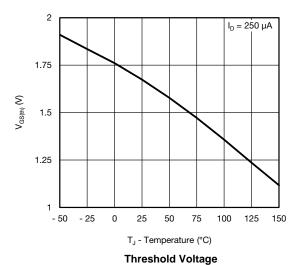


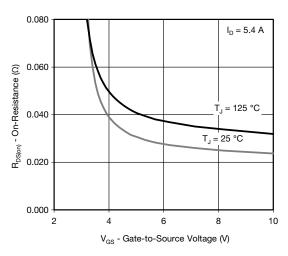
On-Resistance vs. Junction Temperature



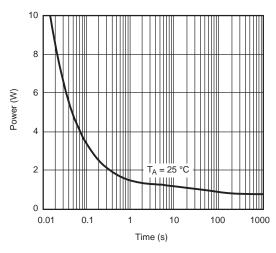


Source-Drain Diode Forward Voltage

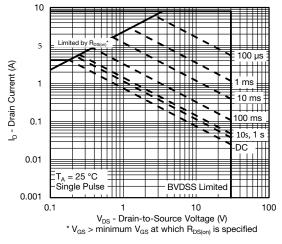




On-Resistance vs. Gate-to-Source Voltage

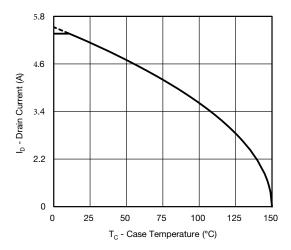


Single Pulse Power (Junction-to-Ambient)

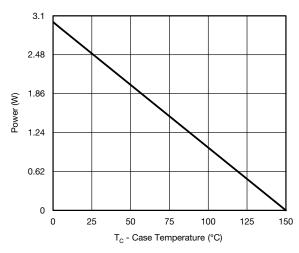


Safe Operating Area, Junction-to-Ambient

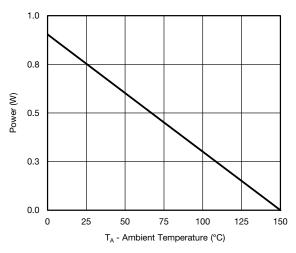




Current Derating*



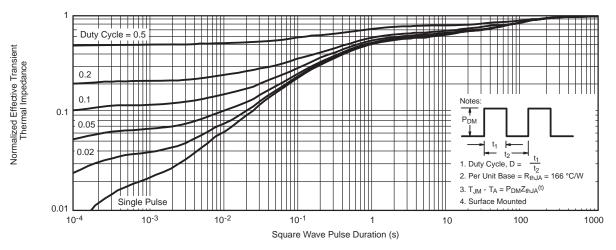




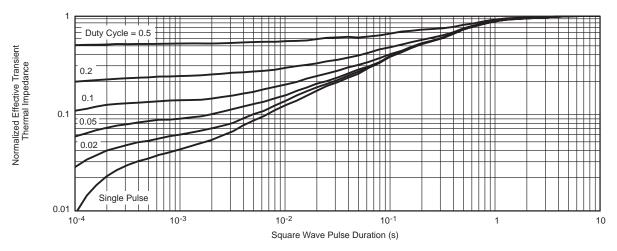
Power, Junction-to-Ambient

^{*} The power dissipation P_D is based on $T_{J(max.)}$ = 150 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit.





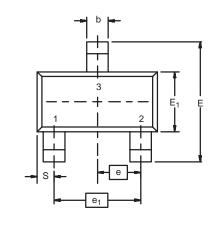
Normalized Thermal Transient Impedance, Junction-to-Ambient

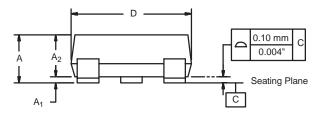


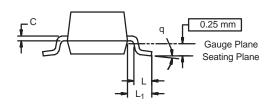
Normalized Thermal Transient Impedance, Junction-to-Foot



SOT-23 (TO-236): 3-LEAD





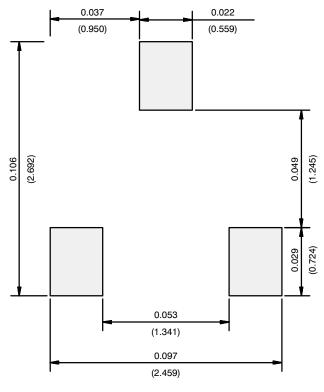


Dim -	MILLIMETERS		INCHES	
	Min	Max	Min	Max
Α	0.89	1.12	0.035	0.044
A ₁	0.01	0.10	0.0004	0.004
A ₂	0.88	1.02	0.0346	0.040
b	0.35	0.50	0.014	0.020
С	0.085	0.18	0.003	0.007
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E ₁	1.20	1.40	0.047	0.055
е	0.95 BSC		0.0374 Ref	
e ₁	1.90 BSC		0.074	8 Ref
L	0.40	0.60	0.016	0.024
L ₁	0.64 Ref		0.025	Ref
S	0.50 Ref		0.020) Ref
q	3°	8°	3°	8°

DWG: 5479



RECOMMENDED MINIMUM PADS FOR SOT-23



Recommended Minimum Pads Dimensions in Inches/(mm)



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