



P-Channel 20-V (D-S) MOSFET, Low-Threshold

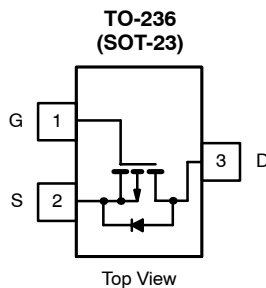
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
-20	0.65 @ V _{GS} = -4.5 V	-0.58
	0.85 @ V _{GS} = -2.5 V	-0.5

FEATURES

- TrenchFET® Power MOSFET
- ESD Protected: 3000 V

APPLICATIONS

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems, DC/DC Converters
- Power Supply Converter Circuits
- Load/Power Switching—Cell Phones, Pagers



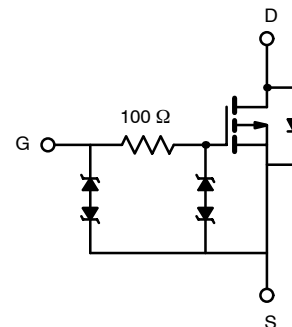
Marking Code: K4ywl

K4 = Part Number Code for TP0101K

y = Year Code

w = Week Code

l = Lot Traceability



Ordering Information: TP0101K-T1—E3 (Lead Free)

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current (T _J = 150 °C) ^b	I _D	T _A = 25 °C	-0.58
		T _A = 70 °C	-0.46
Pulsed Drain Current ^a	I _{DM}	-2	A
Continuous Source Current (Diode Conduction) ^b	I _S	-0.3	
Power Dissipation ^b	P _D	T _A = 25 °C	0.35
		T _A = 70 °C	0.22
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Limits	Unit
Thermal Resistance, Junction-to-Ambient ^b	R _{thJA}	357	°C/W

Notes

- Pulse width limited by maximum junction temperature.
- Surface Mounted on FR4 Board, t ≤ 10 sec.



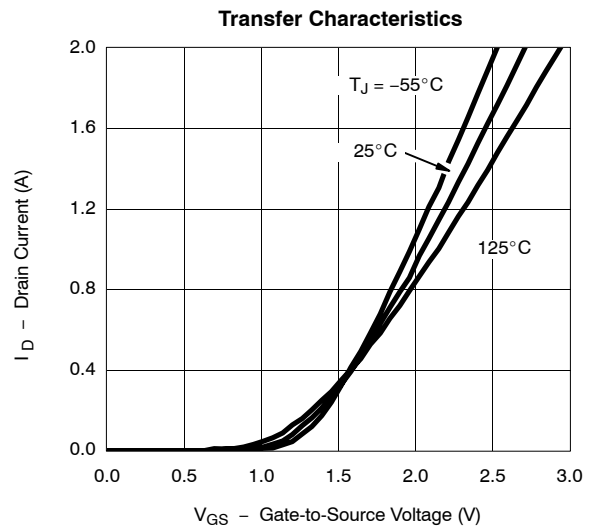
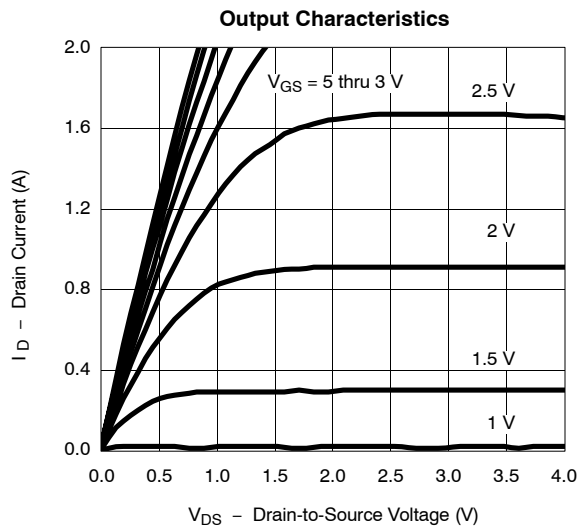
SPECIFICATIONS (T_A = 25 °C UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = -10 μA	-20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -50 μA	-0.5	-0.7	-1.0	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±4.5 V			±5	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20 V, V _{GS} = 0 V T _J = 55 °C			-1 -10	μA
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ -5 V, V _{GS} = -4.5 V	-1.2			A
		V _{DS} ≤ -5 V, V _{GS} = -2.5 V	-0.5			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = -4.5 V, I _D = -0.58 A		0.42	0.65	Ω
		V _{GS} = -2.5 V, I _D = -0.5 A		0.64	0.85	Ω
Forward Transconductance ^a	g _{fs}	V _{DS} = -5 V, I _D = -0.58 A		1300		mS
Diode Forward Voltage ^a	V _{SD}	I _S = -0.3 A, V _{GS} = 0 V		-0.9	-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -6 V, V _{GS} = -4.5 V I _D ≅ -0.58 A		1400	2200	pC
Gate-Source Charge	Q _{gs}			300		
Gate-Drain Charge	Q _{gd}			250		
Gate Resistance	R _g		150			Ω
Turn-On Time	t _{d(on)}	V _{DD} = -6 V, R _L = 10 Ω I _D ≅ -0.58 A, V _{GEN} = -4.5 V R _g = 6 Ω		25	35	ns
	t _r			30	45	
Turn-Off Time	t _{d(off)}			55	85	
	t _f			38	60	

Notes

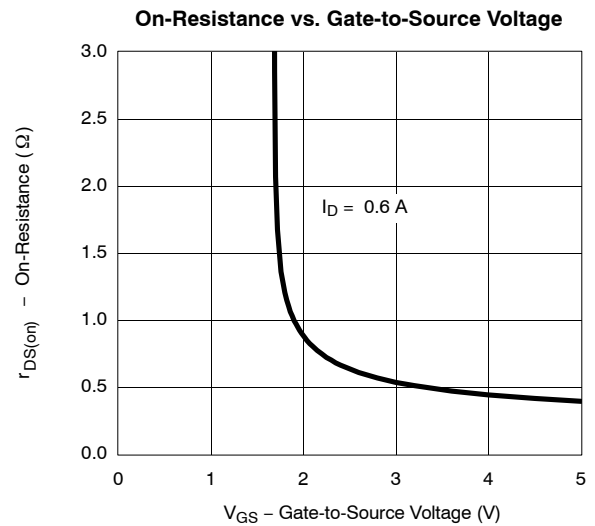
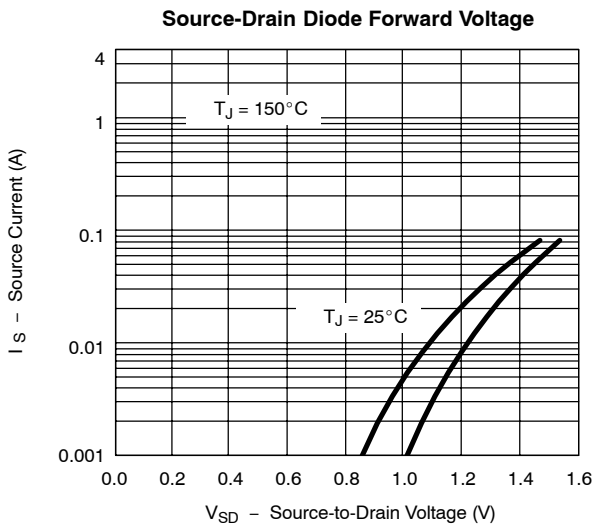
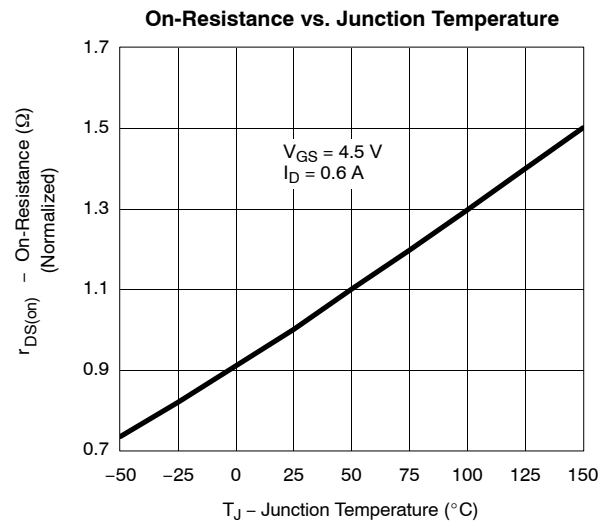
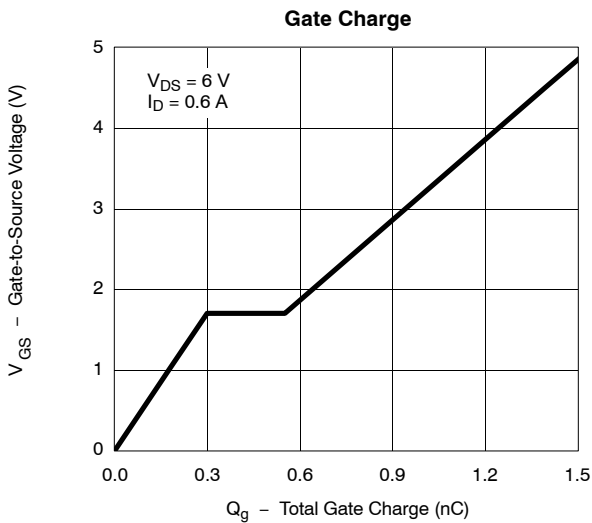
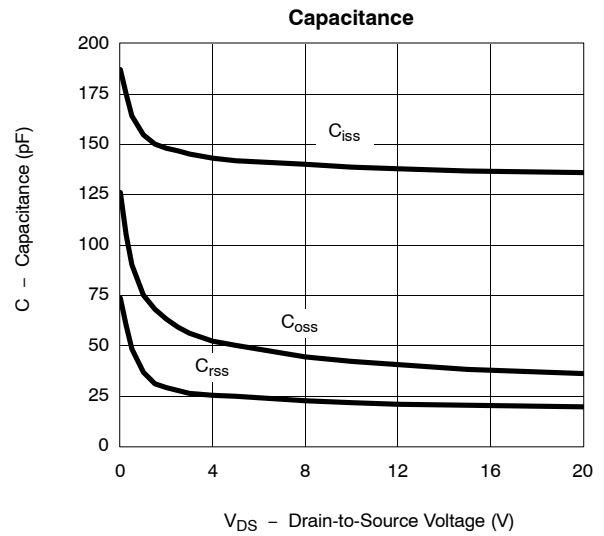
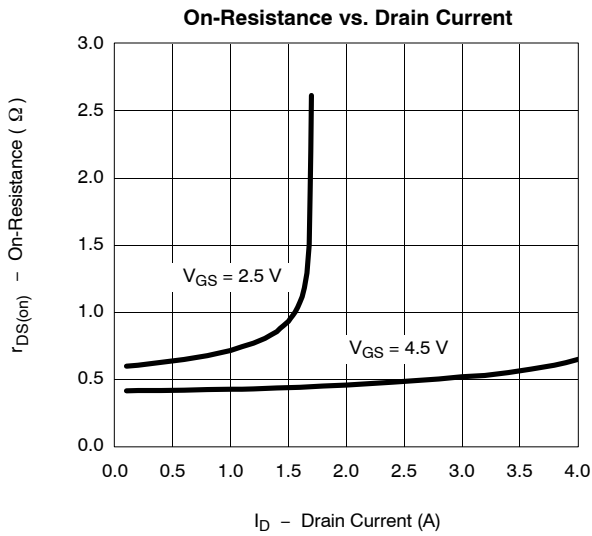
- a. Pulse test: PW ≤ 300 μs duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



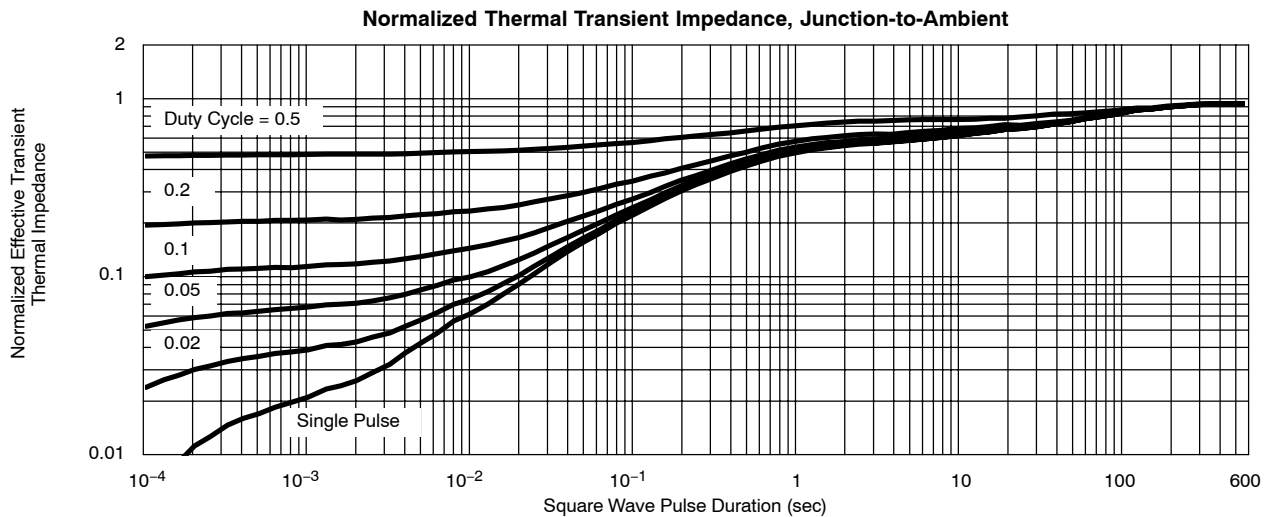
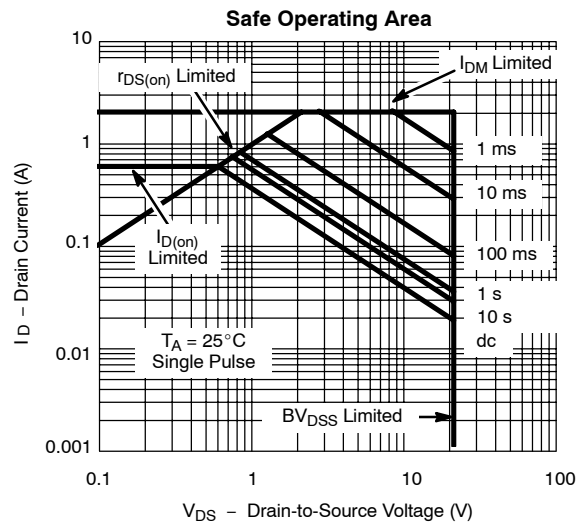
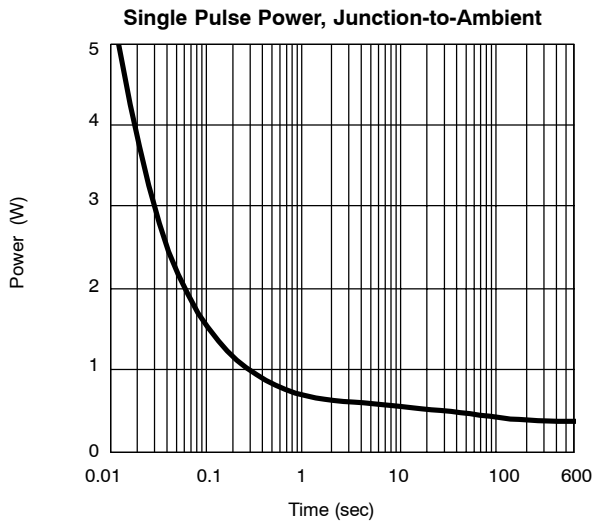
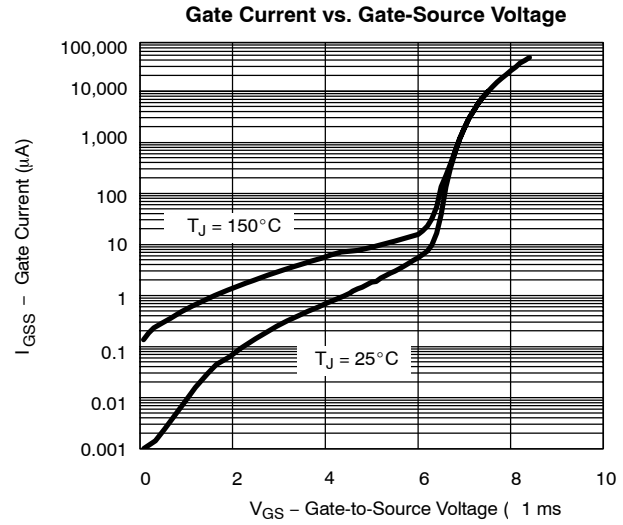
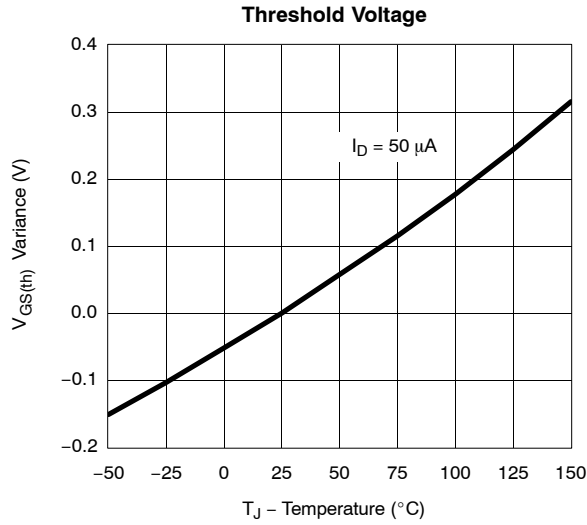


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