

**Features**

- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)

**Maximum Ratings**

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 104°C/W Junction to Ambient (Note 2)

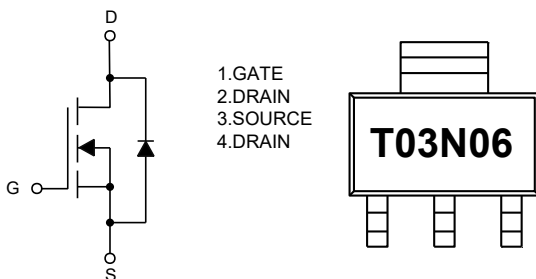
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Drain Current	$I_D$	3.0	A
Pulsed Drain Current (Note3)	$I_{DM}$	10	A
Total Power Dissipation	$P_D$	1.2	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Surface mounted on FR4 board , t≤10s.

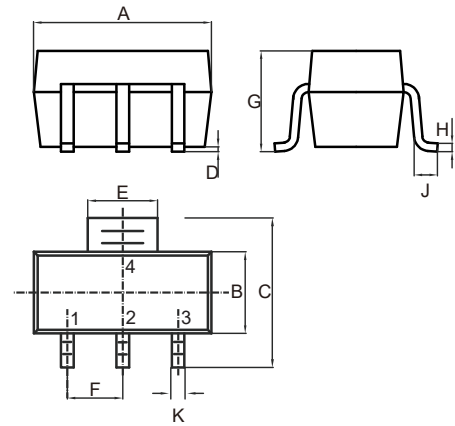
3. Repetitive rating : Pulse width limited by junction temperature.

**Internal Structure and Marking Code**



**N-Channel  
Enhancement Mode  
Field Effect Transistor**

**SOT-223**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage <sup>(Note 4)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		2.0	V
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$			105	m $\Omega$
		$V_{GS}=4.5V, I_D=3A$			125	
Diode Forward Voltage <sup>(Note 4)</sup>	$V_{SD}$	$V_{GS}=0V, I_S=3A$			1.2	V
Forward Transconductance <sup>(Note 4)</sup>	$g_{FS}$	$V_{DS}=15V, I_D=2A$	1.4			S
<b>Dynamic Characteristics<sup>(Note 5)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		247		pF
Output Capacitance	$C_{oss}$			34		
Reverse Transfer Capacitance	$C_{rss}$			19.5		
<b>Switching Characteristics<sup>(Note 5)</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=4.5V, I_D=3A$		6		nC
Gate-Source Charge	$Q_{gs}$			1		
Gate-Drain Charge	$Q_{gd}$			1.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=1.5A,$ $R_{GEN}=1\Omega$		6		ns
Turn-On Rise Time	$t_r$			15		
Turn-Off Delay Time	$t_{d(off)}$			15		
Turn-Off Fall Time	$t_f$			10		

Note:

 4. Pulse Test : Pulse Width $\leq 300\mu s$ , Duty Cycle $\leq 0.5\%$ .

5. Guaranteed by design, not subject to producing.

## Curve Characteristics

Fig. 1 - Output Characteristics

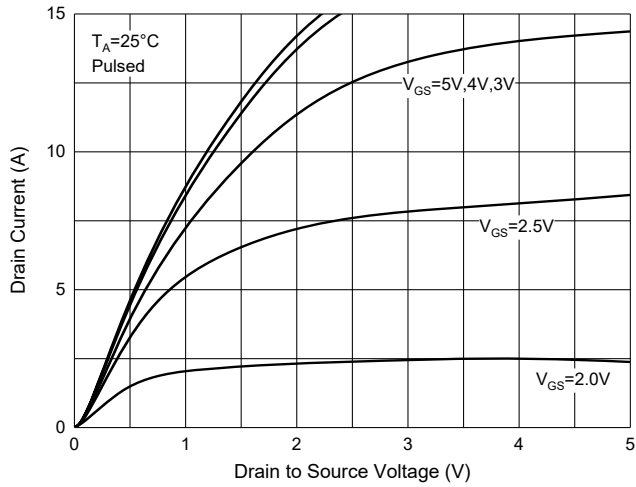


Fig. 2 - Transfer Characteristics

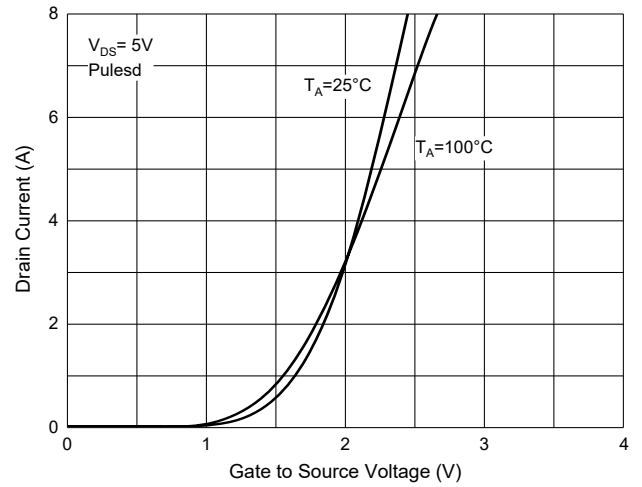


Fig. 3 -  $R_{DS(ON)} - I_D$

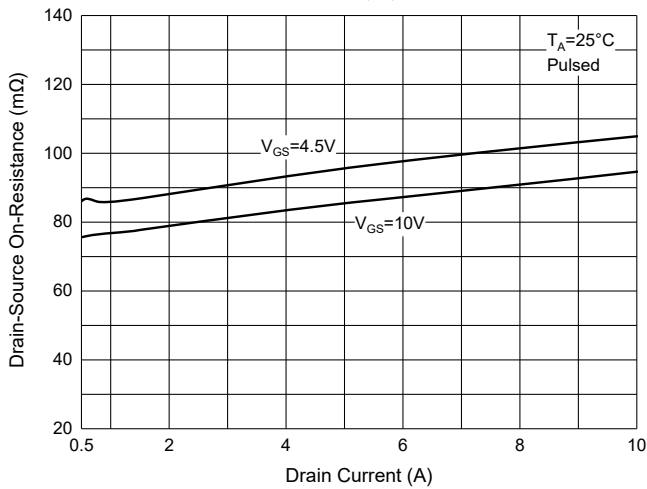


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

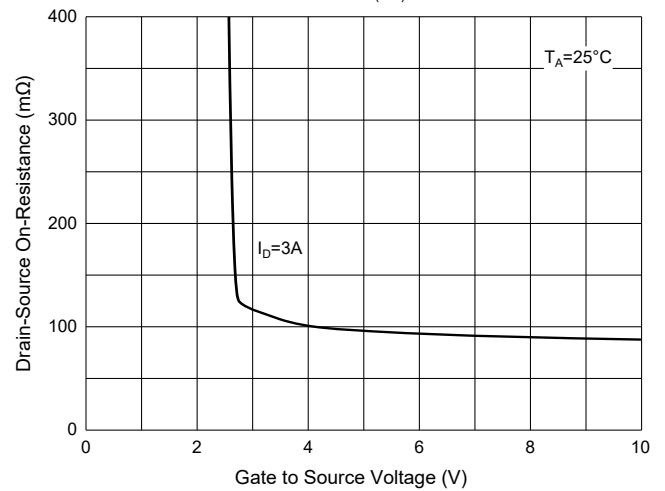


Fig. 5 -  $I_S - V_{SD}$

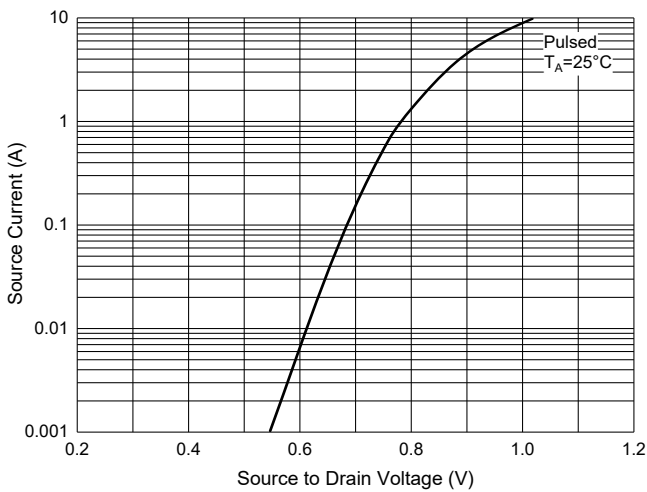
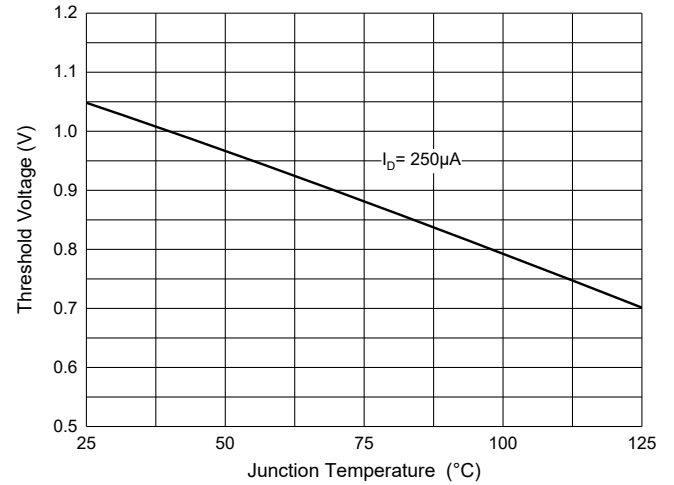


Fig. 6 - Threshold Voltage



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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