

## Features

- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

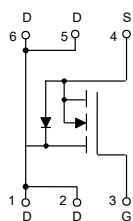
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 78°C/W Junction to Case<sup>(Note1)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	8	A
		5.6	A
Pulsed Drain Current <sup>(Note2)</sup>	$I_{DM}$	32	A
Total Power Dissipation	$P_D$	1.6	W

Note 1. Surface Mounted on FR4 Board,  $t < 10$  sec.

2. Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.

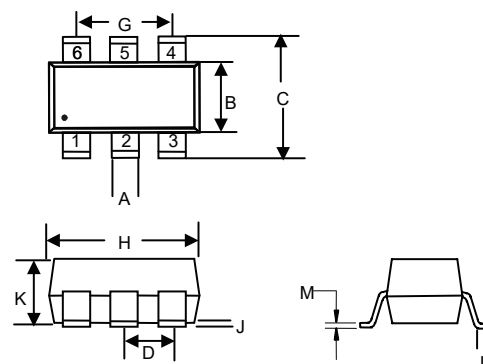
## Internal Structure



Marking: 8N03

# N-CHANNEL MOSFET

## SOT23-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.059	0.067	1.50	1.70	
C	0.104	0.116	2.65	2.95	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
On Characteristics <sup>(Note 3)</sup>						
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.4	3	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A		9	14	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =8A		11	16	
Forward Tranconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =8A		30		S
Dynamic Characteristics <sup>(Note 4)</sup>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V,V <sub>GS</sub> =0V,f =1MHz		900		pF
Output Capacitance	C <sub>oss</sub>			300		
Reverse Transfer Capacitance	C <sub>rss</sub>			50		
Switching Characteristics <sup>(Note 4)</sup>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V,V <sub>DD</sub> =25V,I <sub>D</sub> =1A, R <sub>GEN</sub> =6Ω		15		ns
Turn-On Rise Time	t <sub>r</sub>			10		
Turn-Off Delay Time	t <sub>d(off)</sub>			45		
Turn-Off Fall Time	t <sub>f</sub>			12		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =8A,V <sub>GS</sub> =5V		13		nC
Gate-Source Charge	Q <sub>gs</sub>			3.2		
Gate-Drain Charge	Q <sub>gd</sub>			2.0		
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Current	I <sub>S</sub>				8	A
Diode Forward Voltage <sup>(Note 3)</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =8A			1.2	V

Note: 3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

4. Guaranteed by Design, Not Subject to Production Testing.

## Curve Characteristics

Fig. 1 -  $R_{DS(ON)} - I_D$

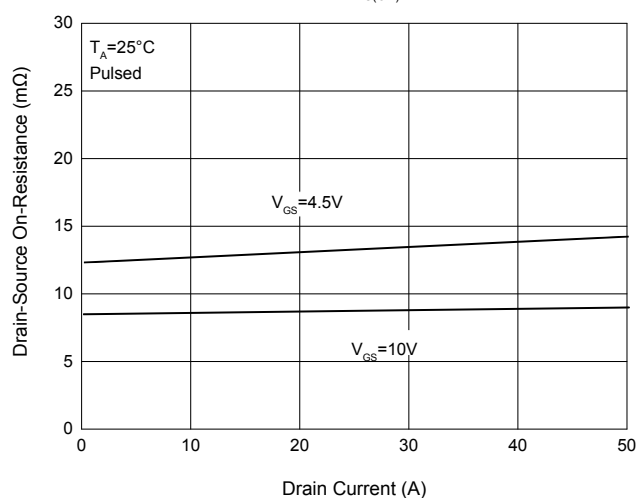


Fig. 2 - Transfer Characteristics

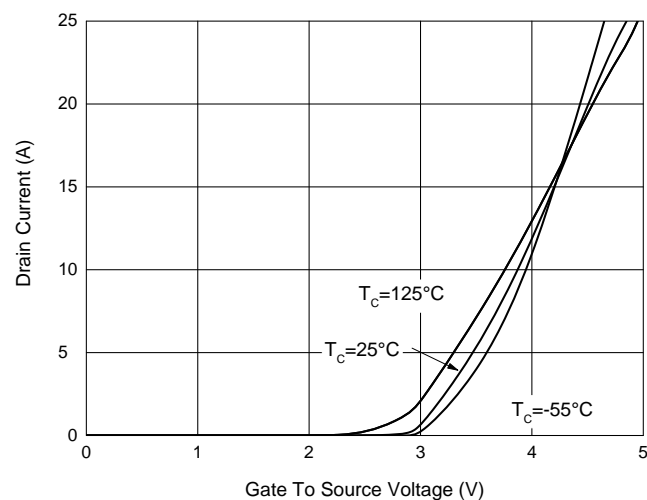


Fig. 3 - Gate Charge Characteristics

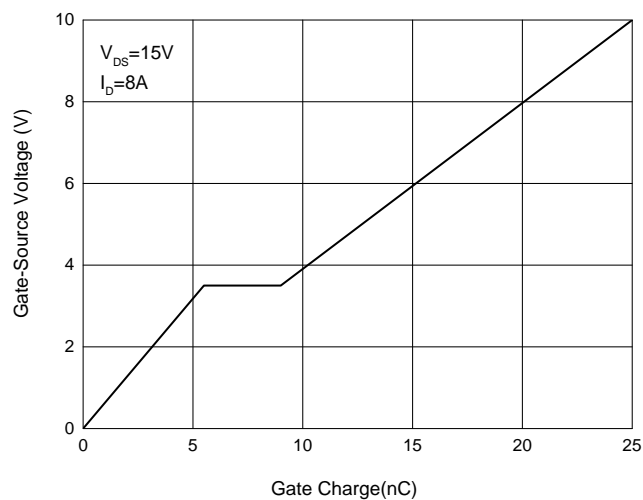
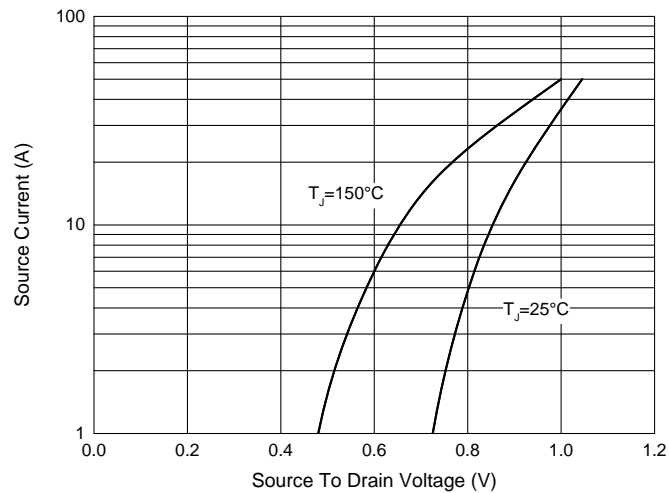


Fig. 4 -  $I_S - V_{SD}$



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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