Features

- High Density Cell Design for Ultra Low $R_{DS(on)}$
- Special Process Technology for High ESD Capability
- Excellent Package for Good Heat Dissipation
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 250°C/W Junction to Ambient(Note 2)

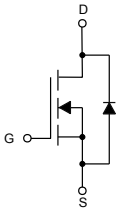
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current(Note 3)	I_{DM}	20	A
Total Power Dissipation	P_D	500	mW

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.

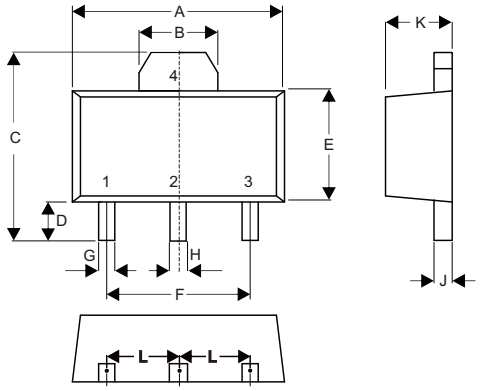
Internal Structure



1. Gate
2,4. Drain
3. Source

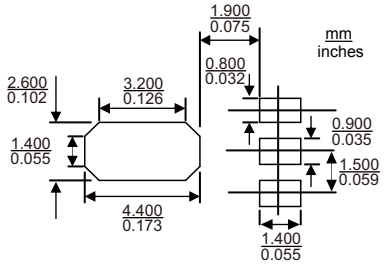
Marking: 03A10

SOT-89



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP.

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	100			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		2	V
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=5A			140	mΩ
Diode Forward Voltage(Note 4)	V_{SD}	V_{GS}=0V, I_S=3A			1.2	V
Forward Transconductance(Note 4)	g_{FS}	V_{DS}=5V, I_D=2.9A	3			S
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		690		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			90		
Switching Characteristics(Note 5)						
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=3A		15.5		nC
Gate-Source Charge	Q_{gs}			3.2		
Gate-Drain Charge	Q_{gd}			4.7		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=30V, R_{GEN}=2.5Ω, I_D=2A, RL=15Ω		11		ns
Turn-On Rise Time	t_r			7.4		
Turn-Off Delay Time	$t_{d(off)}$			35		
Turn-Off Fall Time	t_f			9.1		

Note: 4. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.

5. Guaranteed by Design, Not Subject to Producting.

Curve Characteristics

Fig. 1 - Output Characteristics

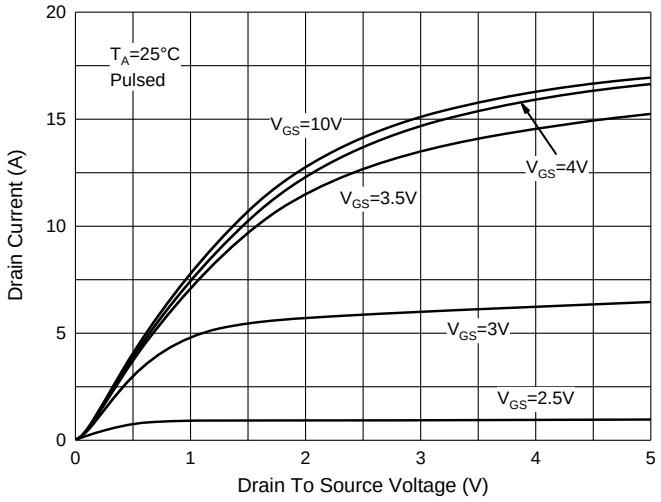


Fig. 2 - Transfer Characteristics

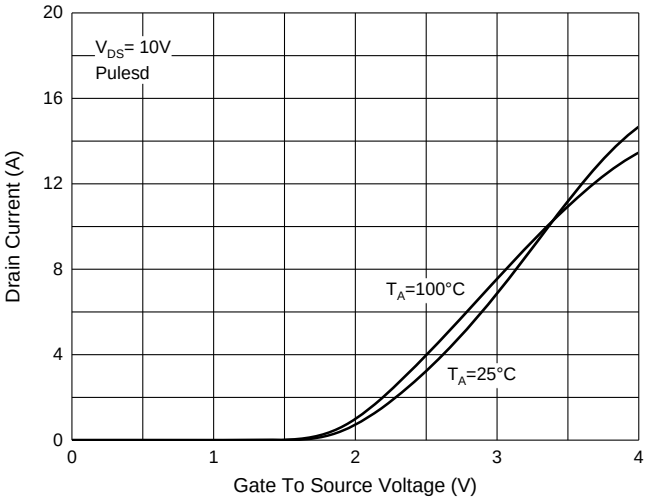


Fig. 3 - $R_{DS(ON)}$—I_D

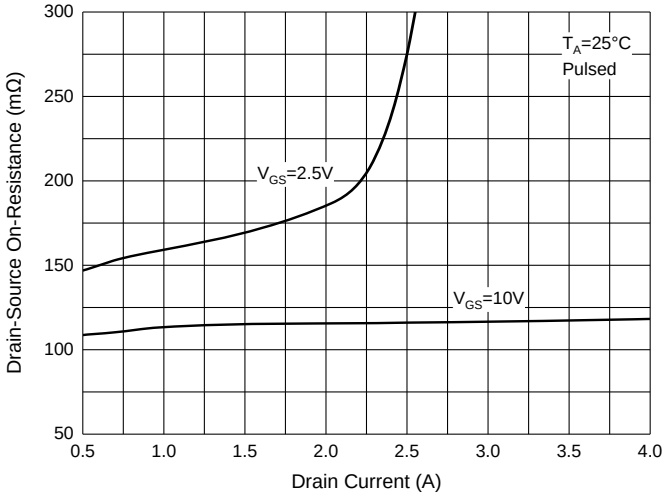


Fig. 4 - $R_{DS(ON)}$—V_{GS}

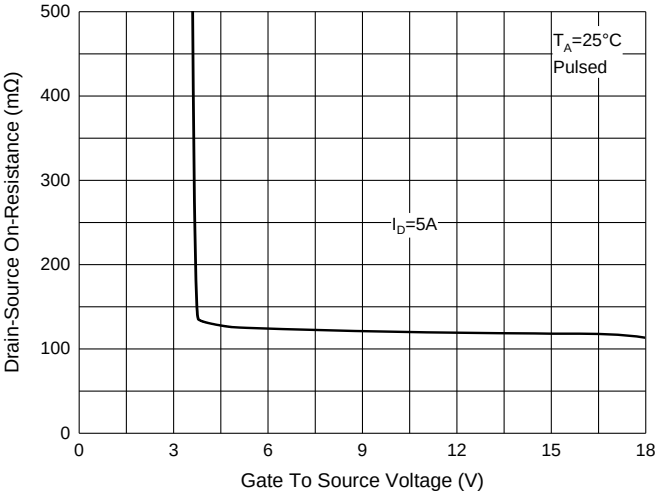


Fig. 5 - I_S—V_{SD}

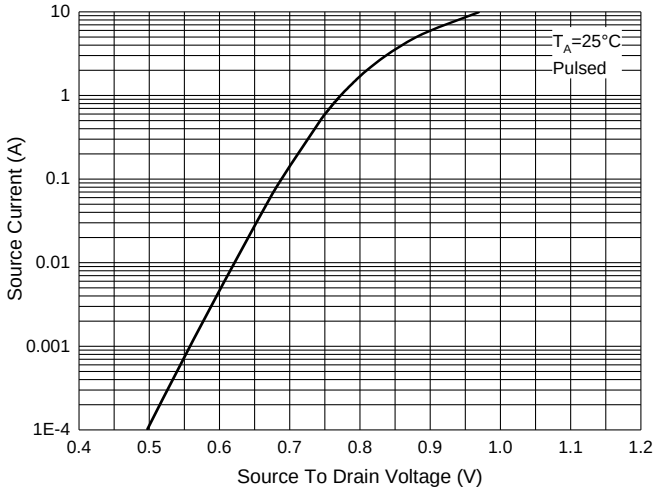


Fig. 6 - Threshold Voltage