

Features

- High Density Cell Design for Ultra Low $R_{DS(on)}$
- Rugged and Reliable
- 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)

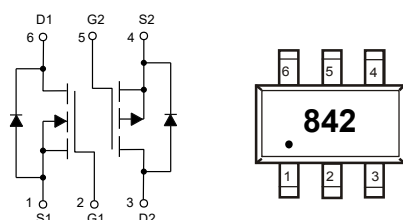
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 625°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Total Power Dissipation	P_D	200	mW
N-Channel MOSFET			
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.115	A
P-Channel MOSFET			
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.13	A
Pulsed Drain Current (Note 3)	I_{DM}	-0.52	A

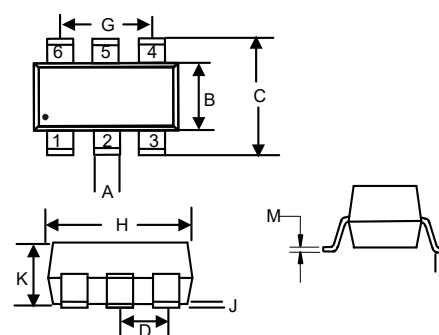
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure and Marking Code



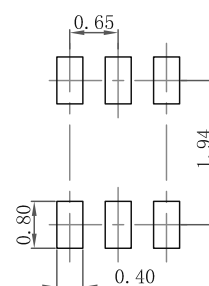
Dual N&P-Channel MOSFET

SOT-363



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

N-Channel

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=10\mu A$	60			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		2.5	V
Gate-Body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			80	nA
		$V_{DS}=60V, V_{GS}=0V, T_J=125^\circ C$			1.0	μA
On-State Drain Current	$I_{D(on)}$	$V_{DS}=7.5V, V_{GS}=10V$	500	2700		mA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$		1.2	2	Ω
		$V_{GS}=5V, I_D=50mA$		1.7	3	
Drain-Source On-Voltage	$V_{DS(on)}$	$V_{GS}=10V, I_D=500mA$			3.75	V
		$V_{GS}=5V, I_D=50mA$			1.5	
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=200mA$	80			ms
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=115mA$			1.5	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				115	mA
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$			50	pF
Output Capacitance	C_{oss}				25	
Reverse Transfer Capacitance	C_{rss}				5	
Turn-On Time	$t_{d(on)}$	$V_{DD}=30V, V_{GEN}=10V, R_L=150\Omega, I_D=200mA, R_{GEN}=25\Omega$			20	ns
Turn-Off Time	$t_{d(off)}$				20	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

P-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-50			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±5	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-50V, V _{GS} =0V			-15	μA
		V _{DS} =-25V, V _{GS} =0V			-0.1	μA
Gate-Threshold Voltage ^(Note 2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.9		-2	V
Drain-Source On-Resistance ^(Note 2)	R _{DS(on)}	V _{GS} =-5V, I _D =-0.1A			10	Ω
		V _{GS} =-10V, I _D =-0.1A			8	
Diode Forward Voltage ^(Note 2)	V _{SD}	V _{GS} =0V, I _S =-0.13A			-2.2	V
Forward Transconductance ^(Note 2)	g _{FS}	V _{DS} =-25V, I _D =-100mA	50			mS
Dynamic Characteristics ^(Note 3)						
Input Capacitance	C _{iss}	V _{DS} =-25V,V _{GS} =0V,f=1MHz		30		pF
Output Capacitance	C _{oss}			10		
Reverse Transfer Capacitance	C _{rss}			5		
Switching Characteristics ^(Note 3)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-30V, V _{GS} =-4.5V, I _D =-0.15A, R _{GEN} =2.5q		8.6		ns
Turn-On Rise Time	t _r			20		
Turn-Off Delay Time	t _{d(off)}			15		
Turn-Off Fall Time	t _f			77		

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

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

Curve Characteristics(N-Channel)

Fig. 1 - Output Characteristics

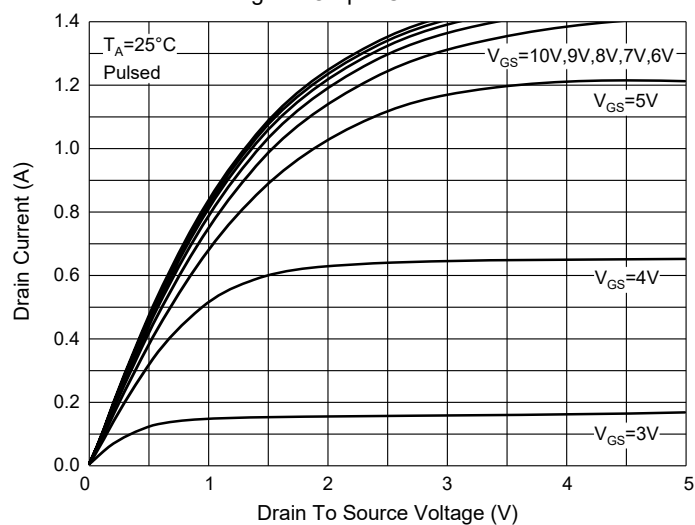


Fig. 2 - Transfer Characteristics

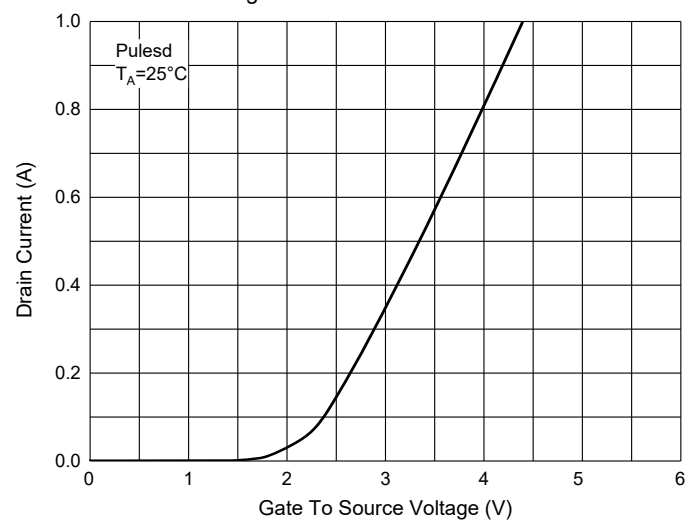


Fig. 3 - $R_{DS(ON)} - I_D$

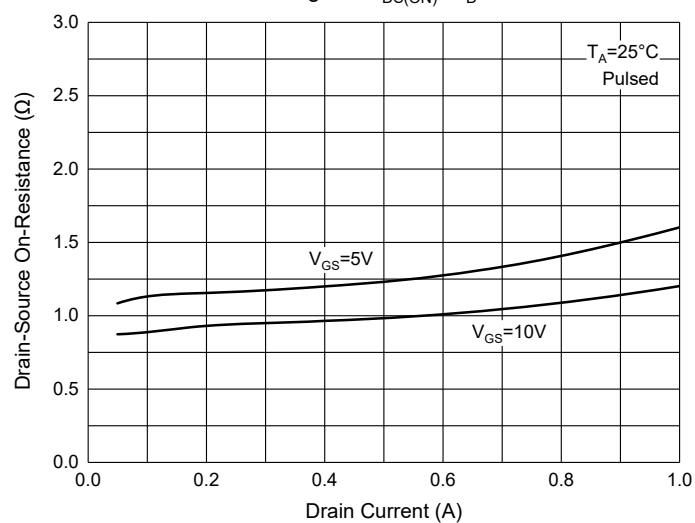


Fig. 3 - $R_{DS(ON)} - V_{GS}$

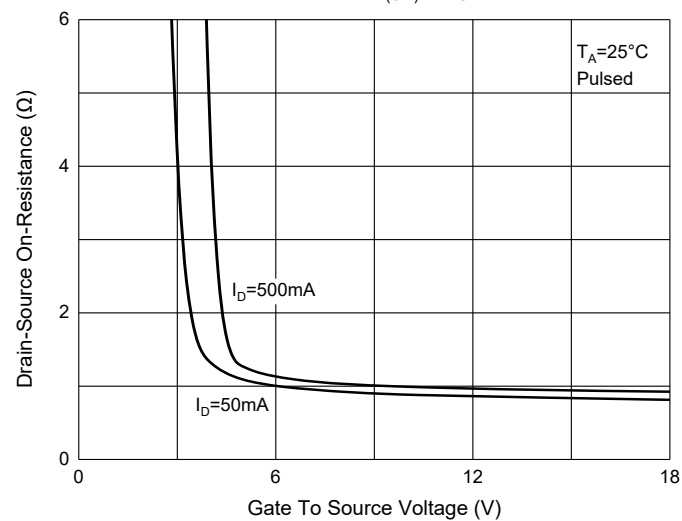
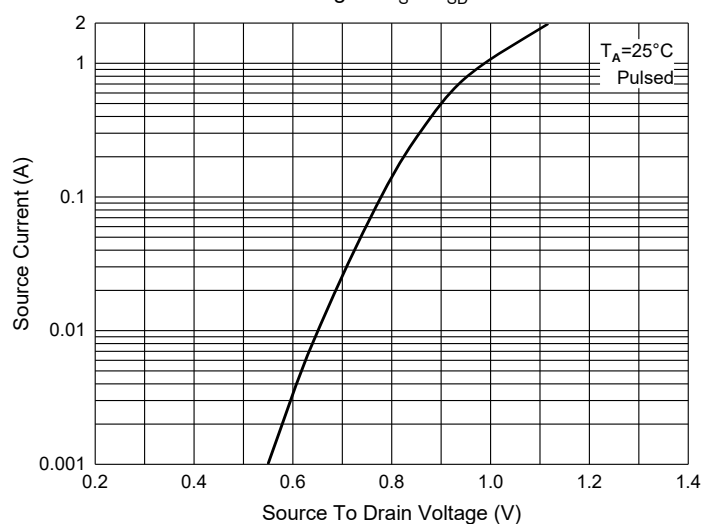


Fig. 5 - $I_S - V_{SD}$



Curve Characteristics(P-Channel)

Fig. 1 - Output Characteristics

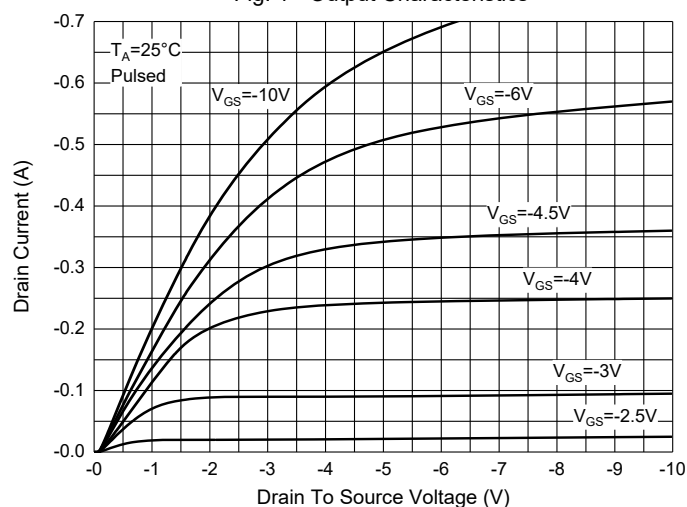


Fig. 2 - Transfer Characteristics

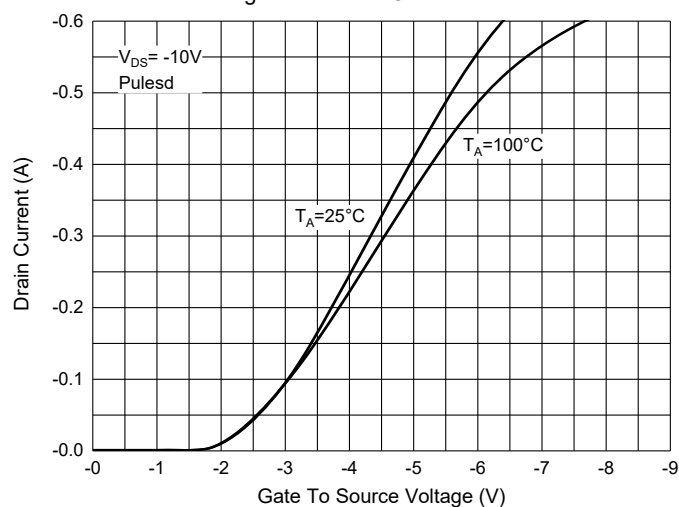


Fig. 3 - $R_{DS(ON)} - I_D$

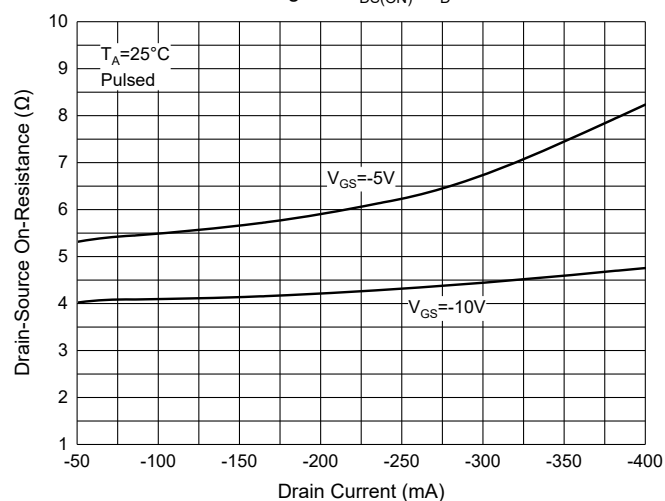


Fig. 4 - $R_{DS(ON)} - V_{GS}$

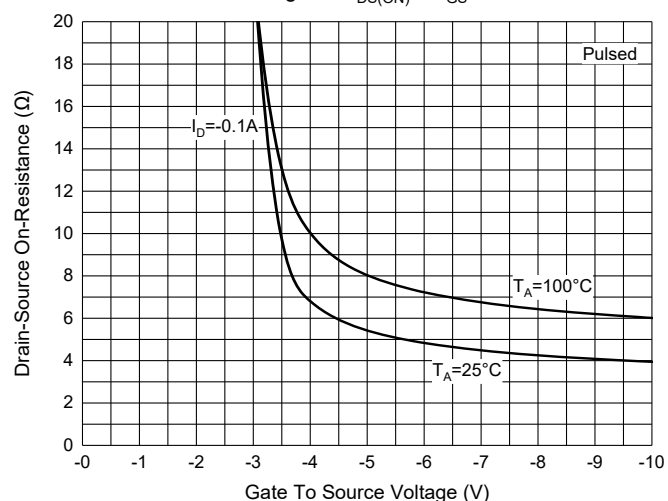


Fig. 5 - $I_S - V_{SD}$

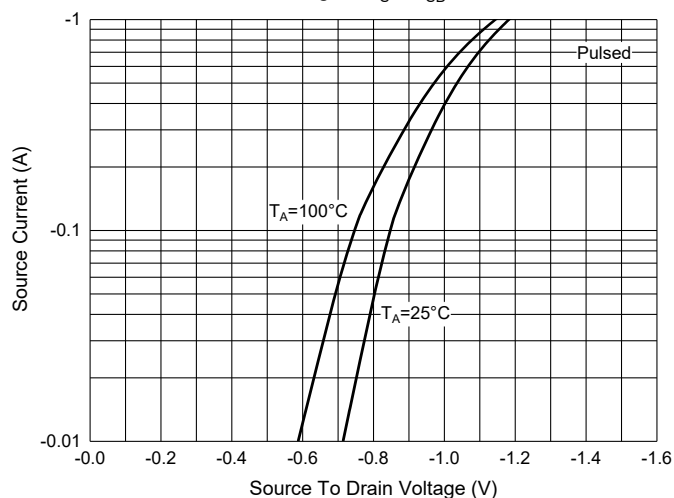
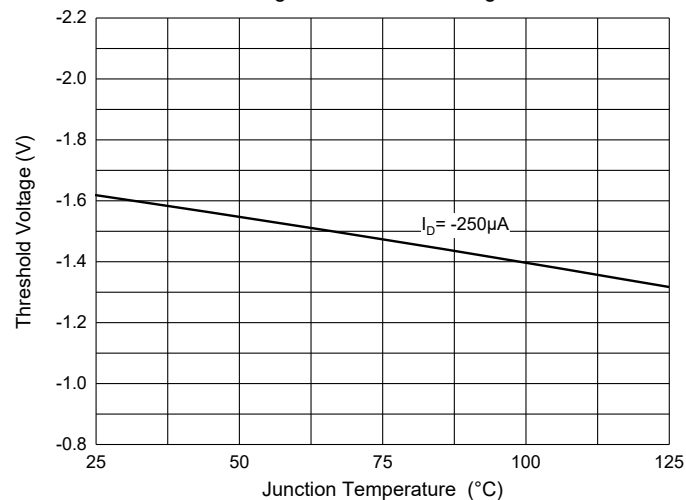


Fig. 6 - Threshold Voltage



Ordering Information

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

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