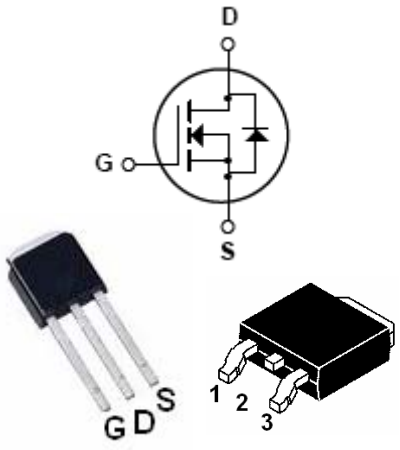
2A, 650 Volts N-CHANNEL POWER MOSFET 2N65

FEATURES

- $R_{DS(on)}$=5.0Ω@V_{GS}=10V.
- Ultra Low gate charge (typical 9.0nC)
- Low reverse transfer capacitance (Crss = typical 5.0 pF)
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

Lead-free



TO-251 **TO-252**

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	650	V
I_D	Drain current continuous	2.0	A
I_{DM}	Drain current Pulsed (Note2)	8.0	A
V_{GSS}	Gate -Source voltage	±30	V
I_{AR}	Avalanche Current (Note2)	2.0	A
E_{AR}	Avalanche Energy Repetitive(Note 2)	4.5	mJ
E_{AS}	Avalanche Energy Single Pulse(Note 3)	140	mJ
dv/dt	Peak Diode Recovery dv/dt (Note4)	4.5	V/ns
P_D	Power Dissipation	35	W
T_J	Junction Temperature	+150	℃
T_{OPR} T_{STG}	Operating and Storage Temperature	-55 ~ +150	℃
θ_{JA}	Thermal Resistance Junction-Ambient	50	℃/W
θ_{Jc}	Thermal Resistance Junction-Case	2.87	℃/W

Note:1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

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2. Repetitive Rating: Pulse width limited by maximum junction temperature
3. L=64mH, I_{AS}=2.0A, V_{DD}=50V, R_G=25 Ω, Starting T_J = 25°C
4. I_{SD}≤ 2.4A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C

ELECTRICAL CHARACTERISTICS@ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	650	-	-	V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	I_D=250UA	-	0.4	-	V/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V, V_{GS}=0V	-	-	1	μA
Gate-body Leakage Forward Reverse	I_{GSS}	V_{DS}=0V, V_{GS}=30V V_{DS}=0V, V_{GS}=-30V	- -	- -	100 -100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	-	4.0	
Static drain-Source on-resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=1A,	-	4.2	5.0	Ω
DYNAMIC CHARACTERISTICS						
Forward transconductance	g_{FS}	V_{DS}=50V,I_D=1A (Note1)	-	2.25	-	S
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1.0MHz	-	270	350	pF
Output Capacitance	C_{oss}		-	40	50	pF
Reverse Transfer Capacitance	C_{rss}		-	5	7	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=325V,I_D=2.4A,R_G=25Ω (Note1,2)	-	10	30	ns
Turn-On Rise Time	t_R		-	25	60	ns
Turn-Off Delay Time	$t_{d(off)}$		-	20	50	ns
Turn-Off Fall Time	t_f		-	25	60	ns
Total Gate Charge	Q_g	V_{DS}=520V,I_D=2.4A,V_{GS}=10V (Note1,2)	-	9.0	11	nC
Gate-Source Charge	Q_{gs}		-	1.6	-	nC
Gate-Drain Charge	Q_{gd}		-	4.3	-	nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I_{SD}		-	-	2.0	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	8.0	A
Drain-Sourse Recovery Charge	V_{SD}	V_{GS}=0V,I_{SD}=2.0A	-	-	1.5	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD}=2.4A, dI_F/dt=100A/us (Note1)	-	180	-	ns
Reverse Recovery Charge	Q_{rr}		-	0.72	-	μC

Notes:

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

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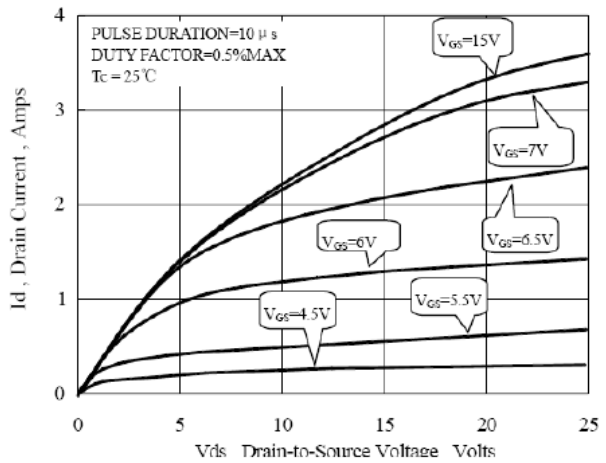
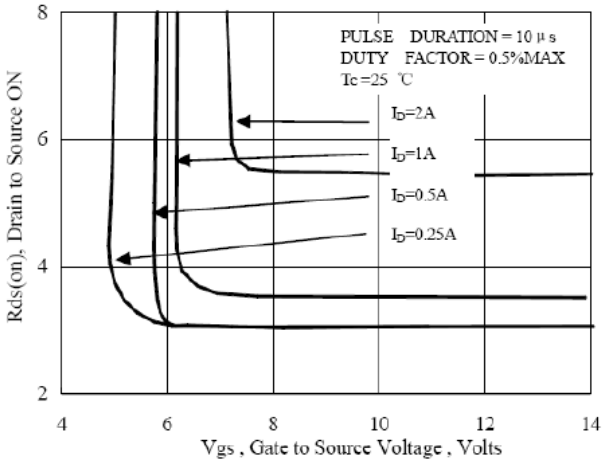
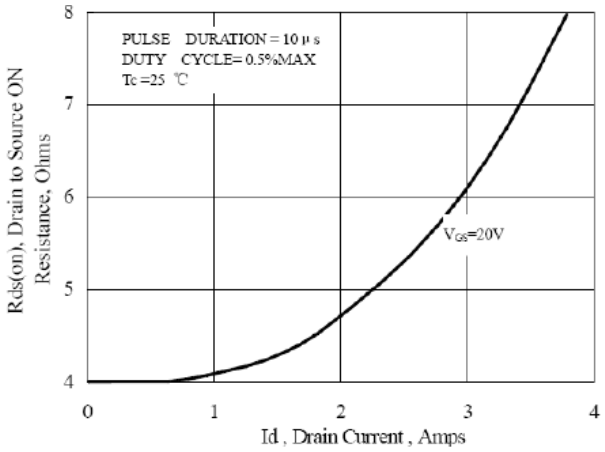
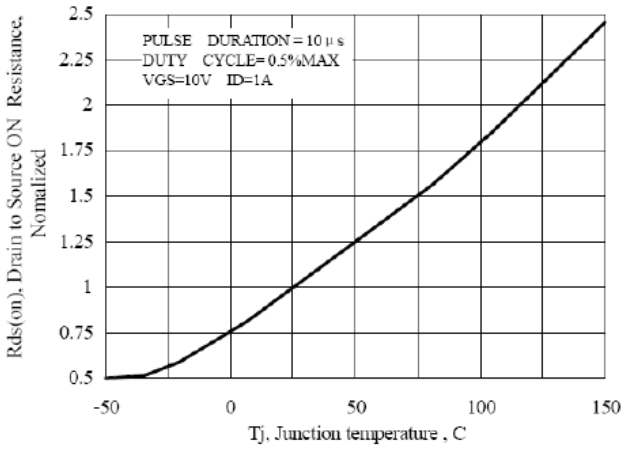
2. Essentially Independent of Operating Temperature

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified





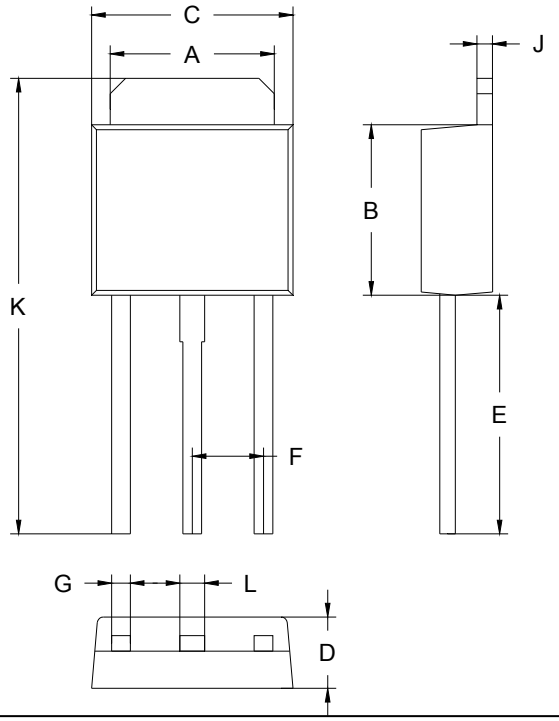




2A, 650 Volts N-CHANNEL POWER MOSFET 2N65

PACKAGE OUTLINE

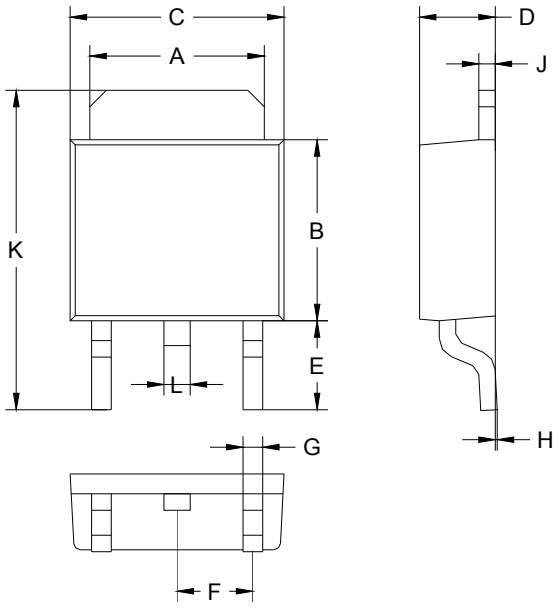
Plastic surface mounted package TO-251



TO-251		
A	5.20	5.40
B	5.30	5.70
C	6.30	6.70
D	2.30 Typ.	
E	7.60	7.80
F	2.20	2..40
G	0.60 Typ	
J	0.50 Typ.	
K	14.6	14.8
L	0.80 Typ.	
All Dimensions in mm		

PACKAGE OUTLINE

Plastic surface mounted package TO-252



TO-252		
A	5.20	5.40
B	5.30	5.70
C	6.30	6.70
D	2.30 Typ.	
E	2.50	2.90
F	2.20	2..40
G	0.60 Typ	
H	0.00	0.12
J	0.50 Typ.	
K	9.50	9.90
L	0.80 Typ.	
All Dimensions in mm		

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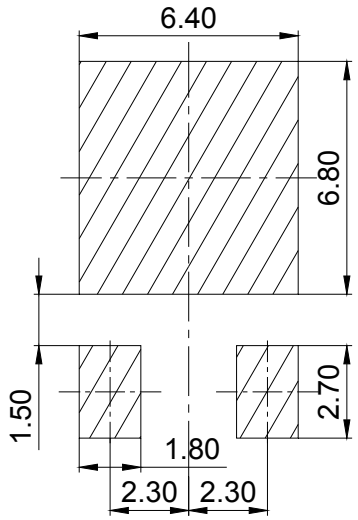
SOLDERING FOOTPRINT



Unit:mm

PACKAGE INFORMATION

Device	Package	Shipping
2N65	TO-251/252	80PCS/Tube
	TO-252	2500PCS/Tape&Reel