

Features

- Trench LV MOSFET Technology
- Moisture Sensitivity Level 3
- Halogen Free. "Green" Device^(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

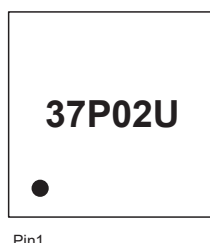
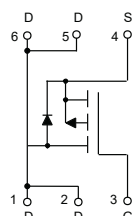
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 83°C/W Junction to Ambient^(Note2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	-5.2	A
	I_D	-3.2	
Pulsed Drain Current ^(Note 3)	I_{DM}	-20.8	A
Total Power Dissipation ^(Note 4)	P_D	1.5	W

Note:

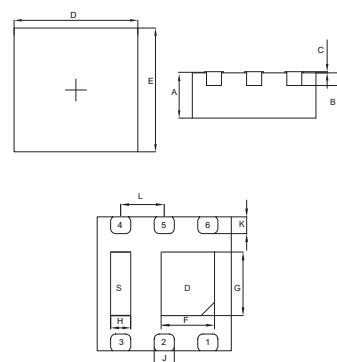
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

Internal Structure and Marking Code



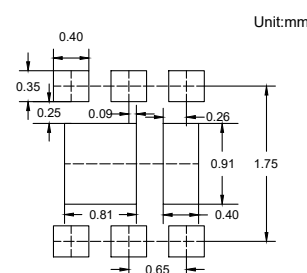
P-CHANNEL MOSFET

DFN2020-6LE



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.033	0.750	0.850	
B	0.008		0.200		REF.
C	0.000	0.002	0.000	0.050	
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.024	0.031	0.610	0.810	
G	0.028	0.036	0.710	0.910	
H	0.008	0.016	0.200	0.400	
J	0.010	0.014	0.250	0.350	
K	0.008	0.012	0.200	0.300	
L	0.026		0.650		TYP.

Suggested Solder Pad Layout



P-Channel MOSFET 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	-20			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.62	-1.0	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-7A		25	37	mΩ
		V _{GS} =-2.5V, I _D =-5A		34	47	
		V _{GS} =-1.8V, I _D =-2A		46	61	
Gate Resistance	R _g	f=1MHz, Open drain		15		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-5.2	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-7A			-1.2	V
Reverse Recovery Time	t _{rr}	I _S =-7A, dI _F /dt=100A/μs		23		ns
Reverse Recovery Charge	Q _{rr}			10		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V,f=1MHz		787		pF
Output Capacitance	C _{oss}			118		
Reverse Transfer Capacitance	C _{rss}			104		
Total Gate Charge	Q _g	V _{DS} =-10V,V _{GS} =-4.5V,I _D =-7A		9.8		nC
Gate-Source Charge	Q _{gs}			1.7		
Gate-Drain Charge	Q _{gd}			2.0		
Turn-On Delay Time	t _{d(on)}	V _{GS} =-4.5V, V _{DD} =-10V, R _G =2.4Ω,I _D =-7A		9.2		ns
Turn-On Rise Time	t _r			30		
Turn-Off Delay Time	t _{d(off)}			60		
Turn-Off Fall Time	t _f			55		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

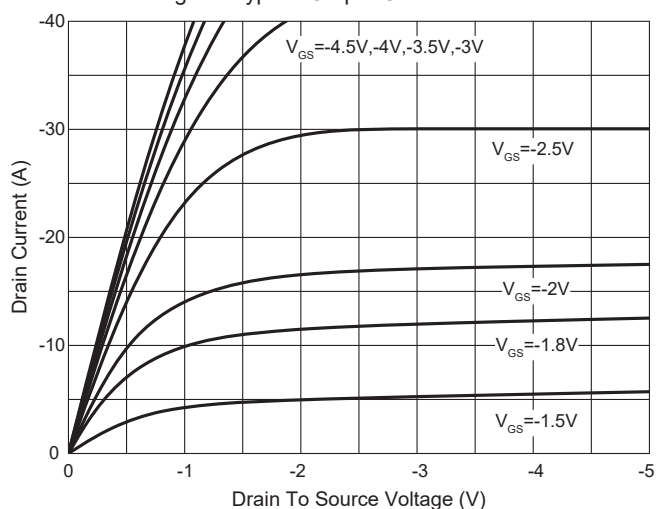


Fig. 2 - Transfer Characteristics

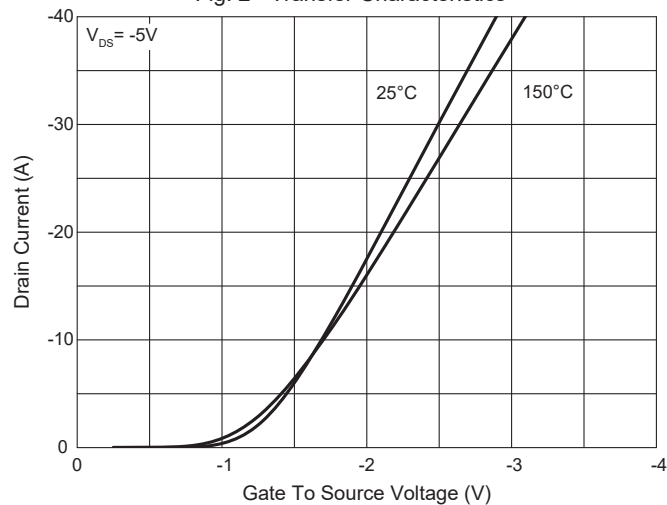


Fig.3- $R_{DS(ON)}-V_{GS}$

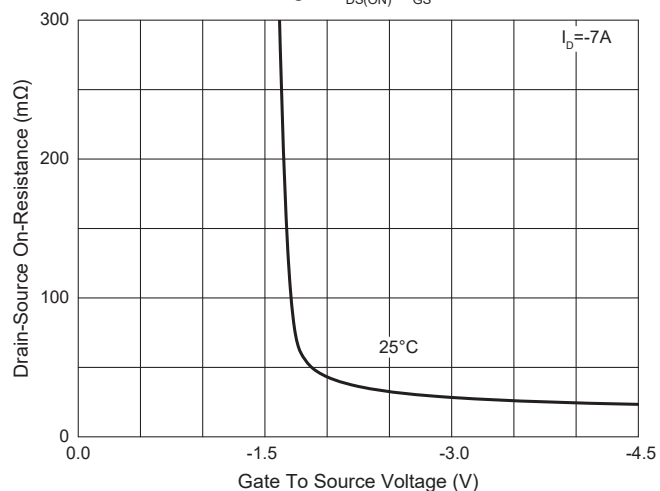


Fig.4- $R_{DS(ON)}-I_D$

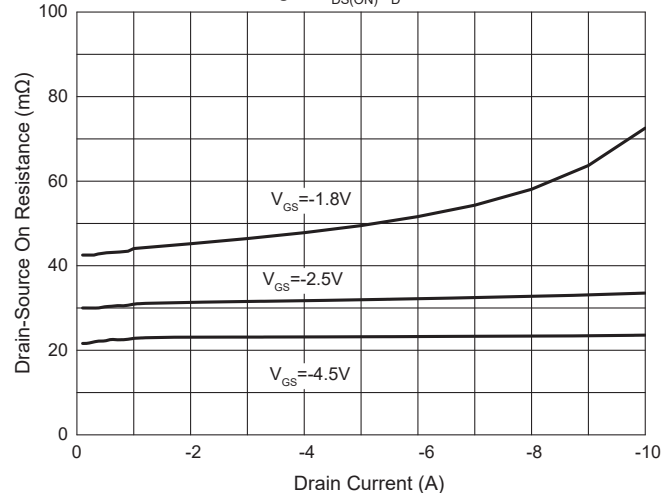


Fig. 5 - Capacitance Characteristics

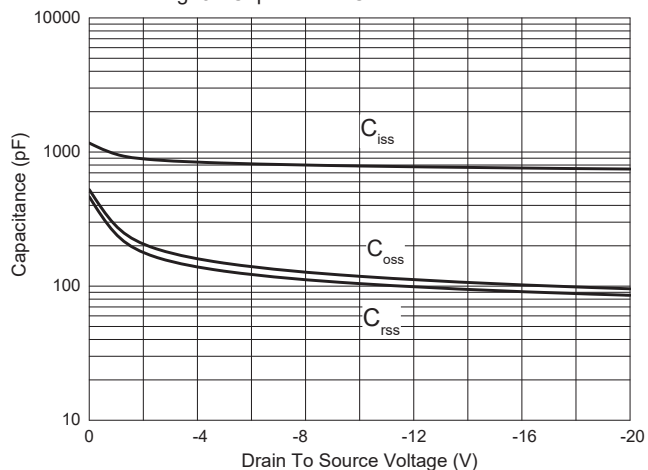
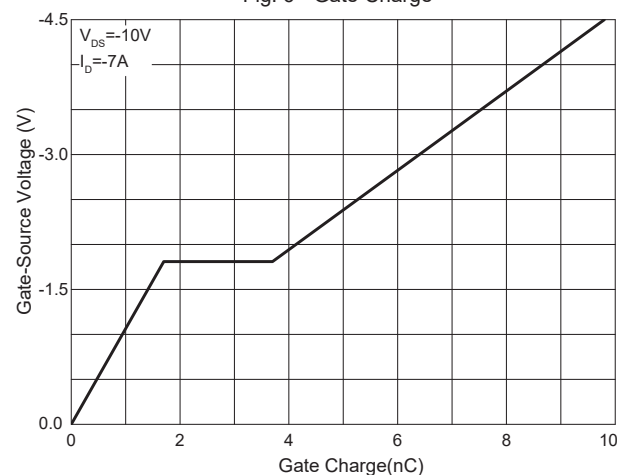


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

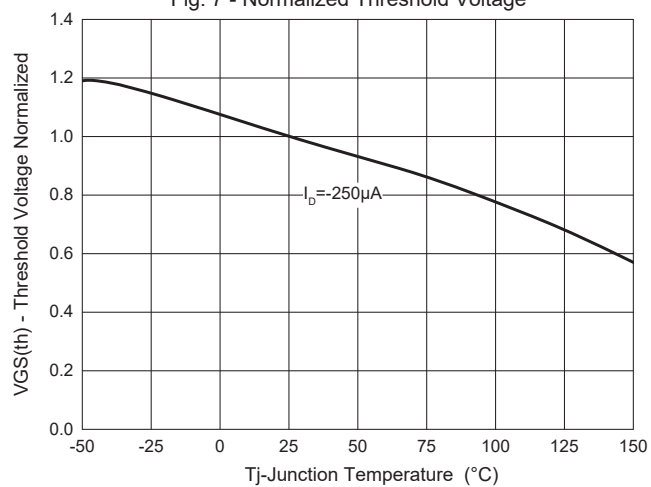


Fig. 8 - Normalized On Resistance Characteristics

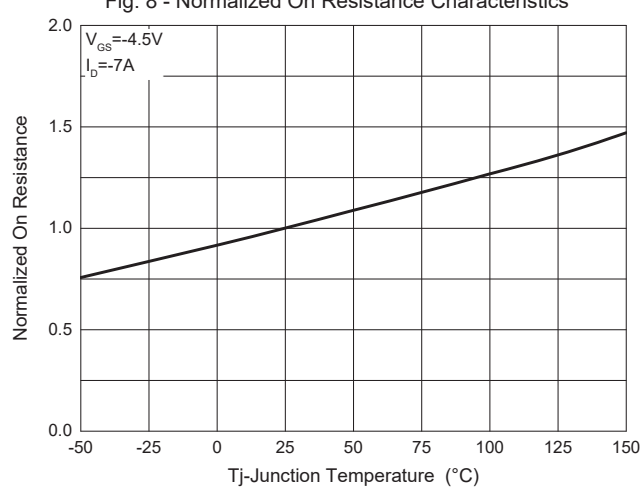


Fig.9- I_S - V_{SD}

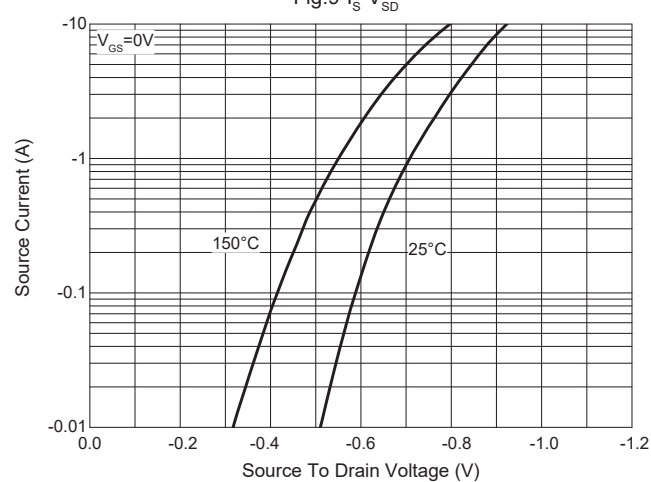


Fig. 10 - Drain Current

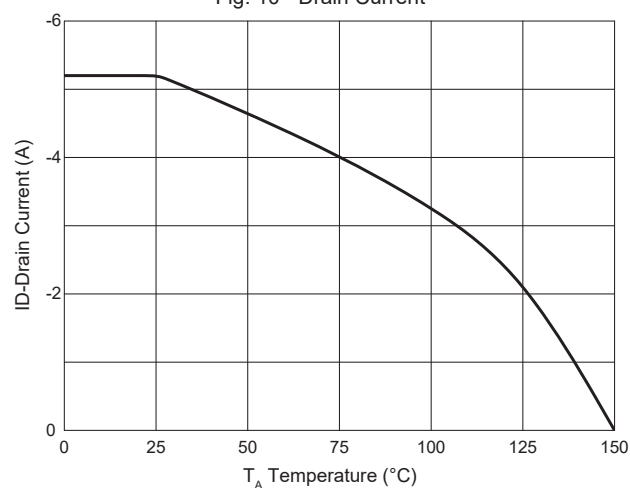
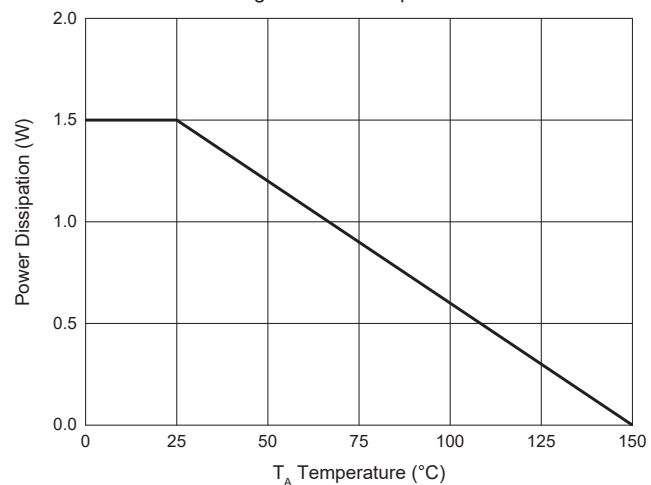


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

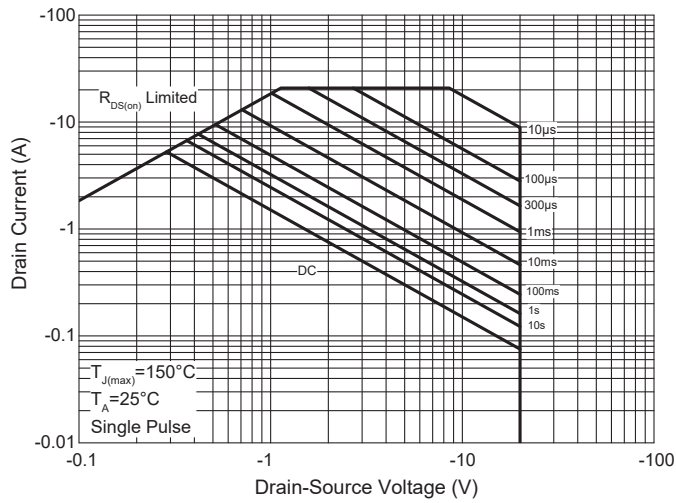
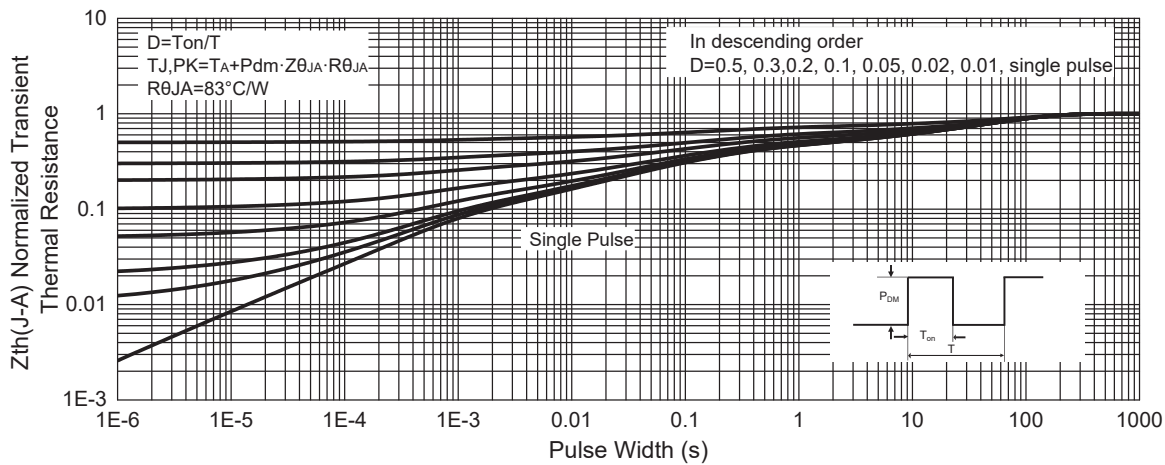


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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