Features

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

N-CHANNEL MOSFET

Maximum Ratings

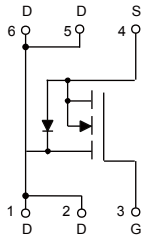
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 43°C/W Junction to Ambient(2)

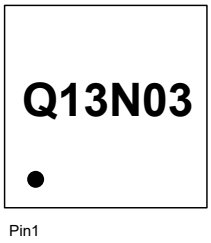
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current	I_D	13	A
Pulsed Drain Current(3)	I_{DM}	55	A
Total Power Dissipation	P_D	2.9	W

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. $R_{\theta JA}$ is the sum of the junction-to-Case and Case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in ^{2} pad of 2oz copper.
3. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

Internal Structure and Marking Code





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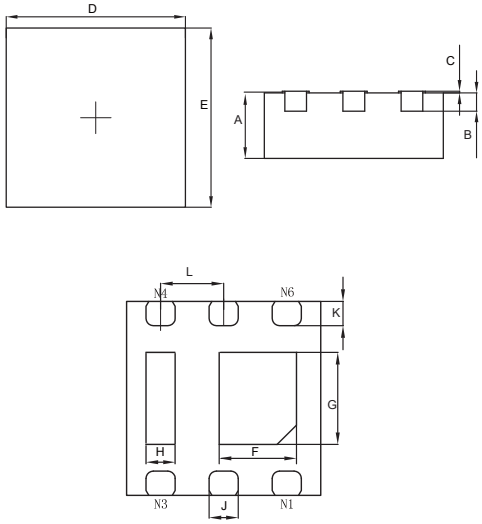


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.033	0.750	0.850	
B	0.008		0.200		REF.
C	0.000	0.002	0.000	0.050	
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.024	0.031	0.610	0.810	
G	0.028	0.036	0.710	0.910	
H	0.008	0.016	0.200	0.400	
J	0.010	0.014	0.250	0.350	
K	0.008	0.012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

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	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=8A		7	12	mΩ
		V_{GS}=4.5V, I_D=5A		11	15	mΩ
Diode Characteristics						
Continuous Body Diode Current	I_S				13	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=13A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=15A, dI_F/dt=100A/μs		5		ns
Reverse Recovery Charge	Q_{rr}			0.2		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		1015		pF
Output Capacitance	C_{oss}			201		
Reverse Transfer Capacitance	C_{rss}			164		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=10V,I_D=20A		23.6		nC
Gate-Source Charge	Q_{gs}			3.8		
Gate-Drain Charge	Q_{gd}			7		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=20V, V_{GS}=10V, R_G=3Ω, I_{DS}=2A		7		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			24		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

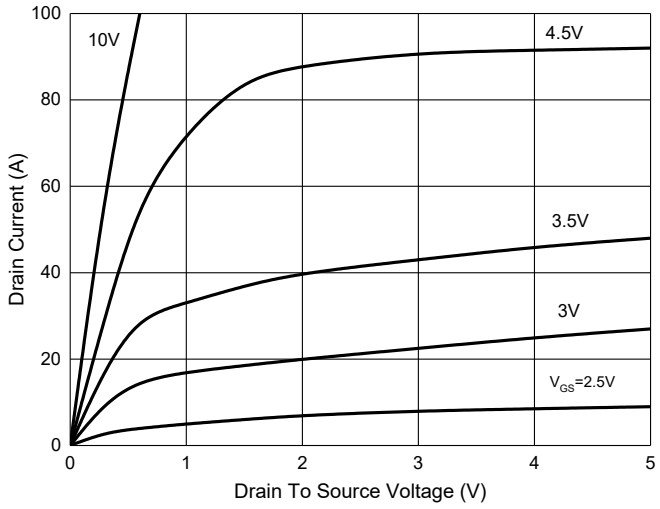


Fig. 2 - Transfer Characteristics

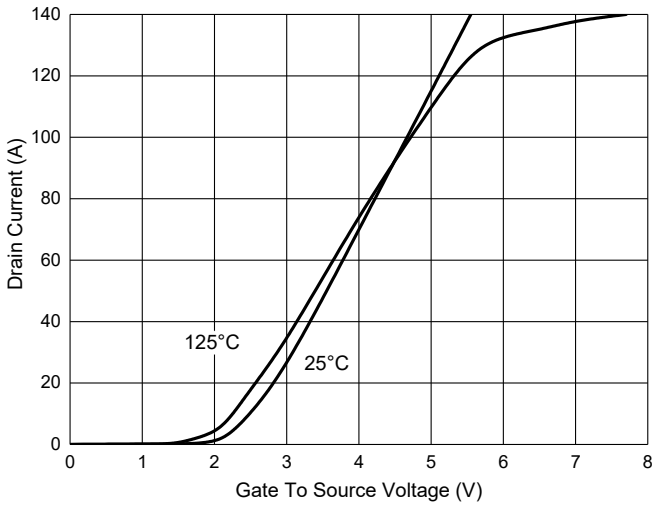


Fig. 3 - $R_{DS(ON)}$—I_D

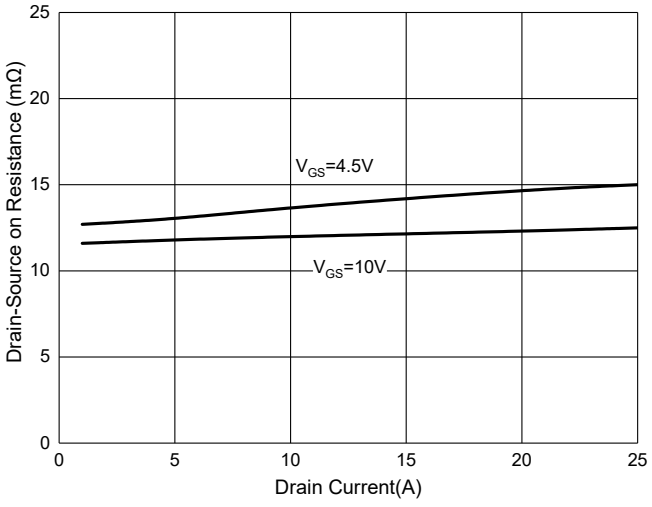


Fig. 4 - Normalized On Resistance Characteristics

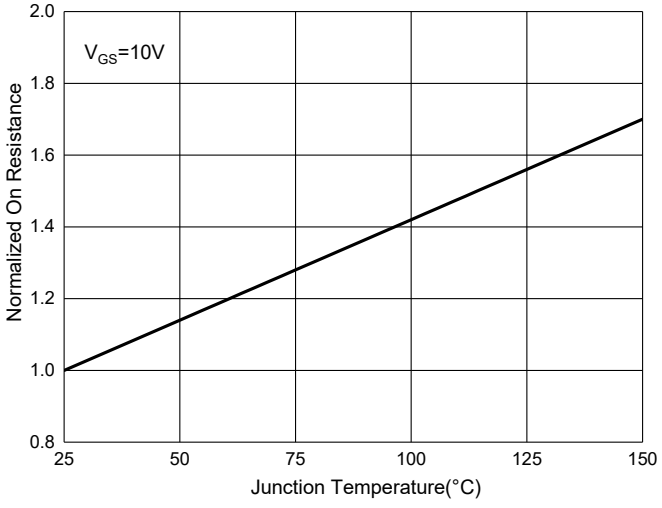


Fig. 5 - Capacitance Characteristics

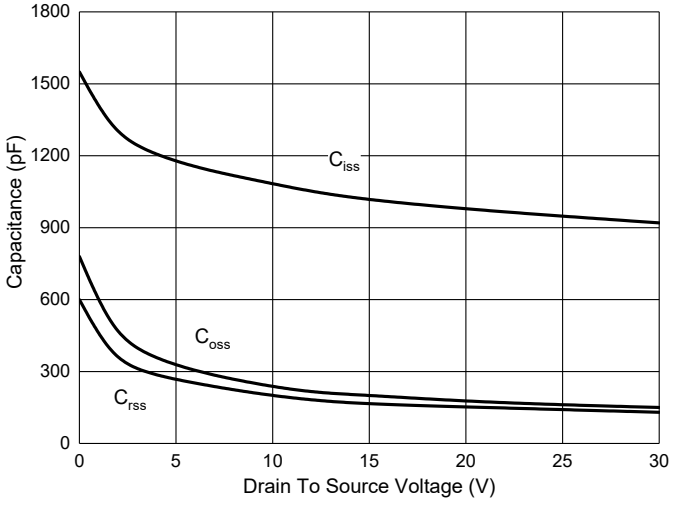
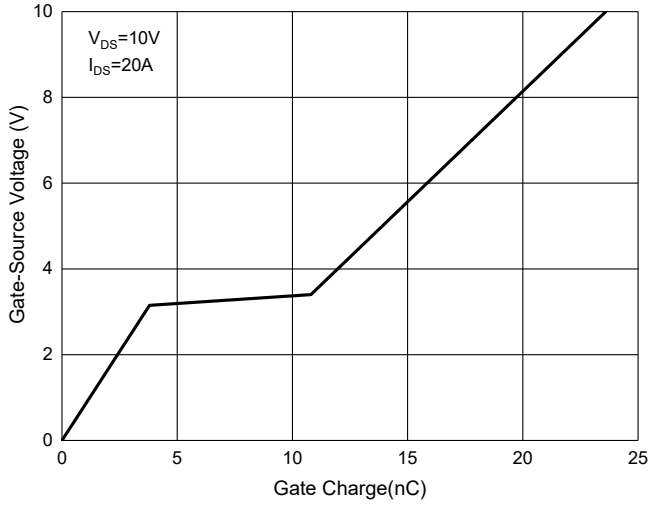


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

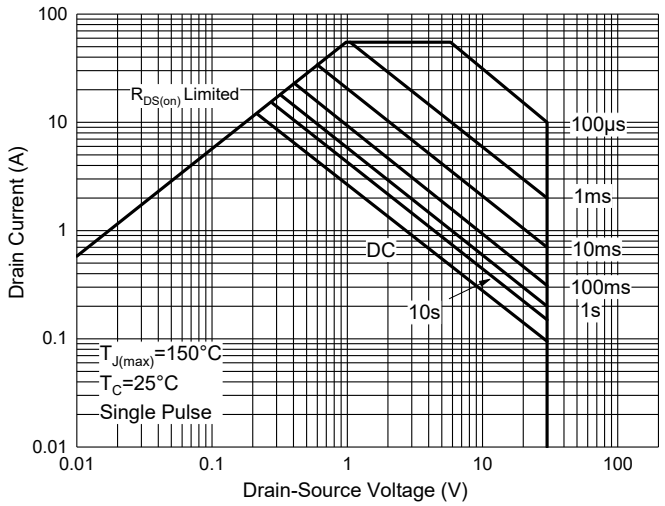
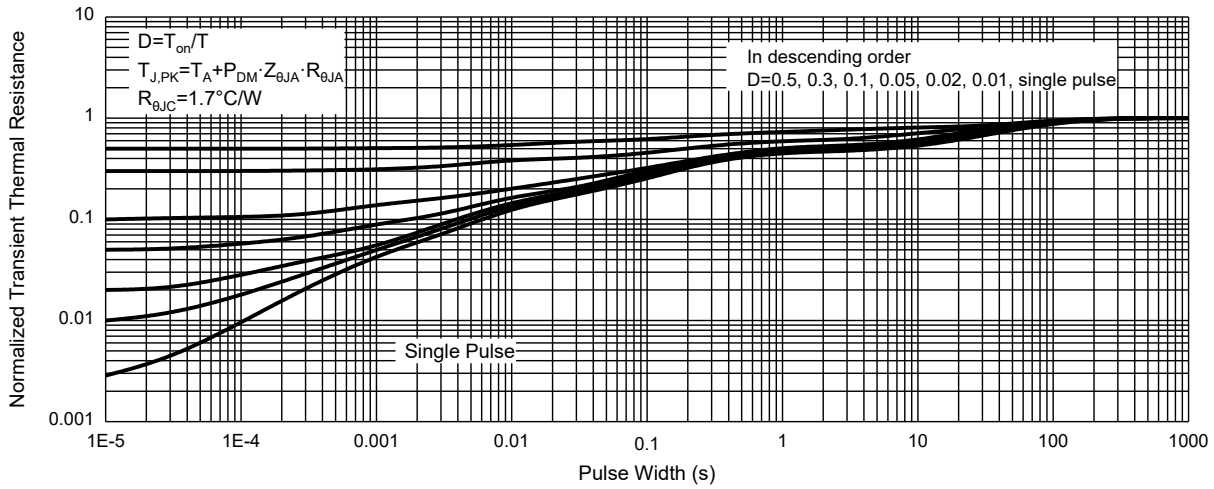


Fig. 8 - Normalized Transient Thermal Impedance



Ordering Information

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