

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

Maximum Ratings

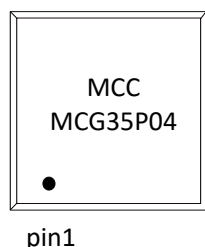
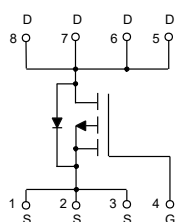
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.3°C/W Junction to Case⁽²⁾
- Thermal Resistance: 150°C/W Junction to Ambient⁽²⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-35	A
Pulsed Drain Current ⁽³⁾	I_{DM}	-140	A
Total Power Dissipation	P_D	38	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E_{AS}	50	mJ

Note:

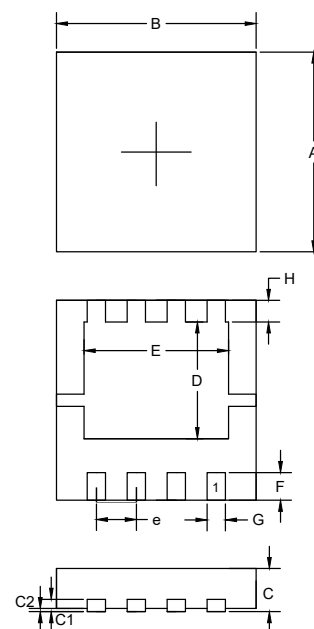
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1in2 FR-4 Board with 2oz. Copper, in a Still Air Environment with $T_A=25^\circ\text{C}$. The Value in Any Given Application Depends on the User's Specific Board Design.
the Value of $R_{\theta JC}$ is Measured with Surface Mounted on 1 in² pad area, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.
4. $V_{DS}=-35\text{V}$, $V_{GS}=-10\text{V}$, $L=1\text{mH}$.
5. For design aid only, not subject to production testing.

Internal Structure and Marking Code



P-CHANNEL MOSFET

DFN3333



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.126	0.130	3.20	3.30	
B	0.126	0.130	3.20	3.30	
C	0.030	0.033	0.75	0.85	
C1	0.007	0.009	0.18	0.22	
C2	---	0.002	---	0.05	
D	0.071	0.079	1.80	2.00	
E	0.087	0.098	2.20	2.50	
F	0.016	0.020	0.40	0.50	
G	0.010	0.014	0.25	0.35	
H	0.012	0.016	0.30	0.40	
e	0.024	0.028	0.60	0.70	

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	-40			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.7	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-15A		17	25	mΩ
		V _{GS} =-4.5V, I _D =-10A		25	35	mΩ
Forward Transconductance ⁽³⁾⁽⁵⁾	g _{fs}	V _{DS} =-5V, I _D =-1A		5.5		S
Diode Characteristics						
Continuous Body Diode Current	I _S				-35	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-20A			-1.3	V
Reverse Recovery Time	t _{rr}	I _F =-12A, dI _F /dt=100A/μs		21.5		ns
Reverse Recovery Charge	Q _{rr}			5		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-20V, V _{GS} =0V, f=1MHz		1257		pF
Output Capacitance	C _{oss}			129		
Reverse Transfer Capacitance	C _{rss}			110		
Total Gate Charge	Q _g	V _{DS} =-20V, V _{GS} =-10V, I _D =-3A		26.6		nC
Gate-Source Charge	Q _{gs}			5.1		
Gate-Drain Charge	Q _{gd}			4.6		
Turn-On Delay Time	t _{d(on)}	V _{DS} =-20V, V _{GS} =-10V, R _G =3.3Ω, I _{DS} =-3A		5.4		ns
Turn-On Rise Time	t _r			21.5		
Turn-Off Delay Time	t _{d(off)}			94.7		
Turn-Off Fall Time	t _f			45.2		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

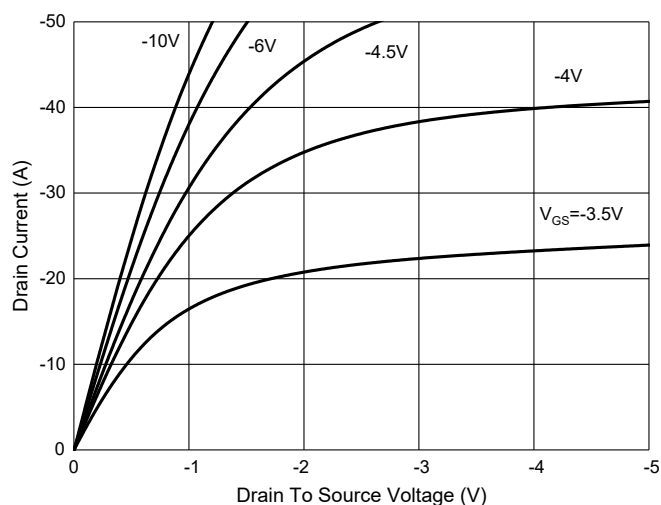


Fig. 2 - Transfer Characteristics

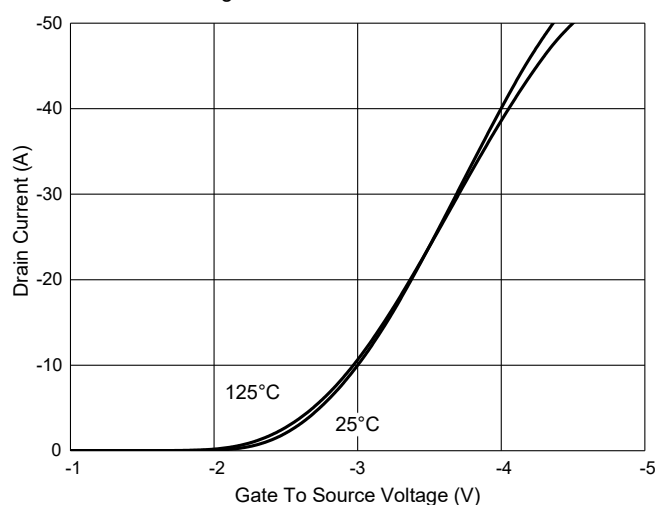


Fig. 3 - $R_{DS(ON)} - I_D$

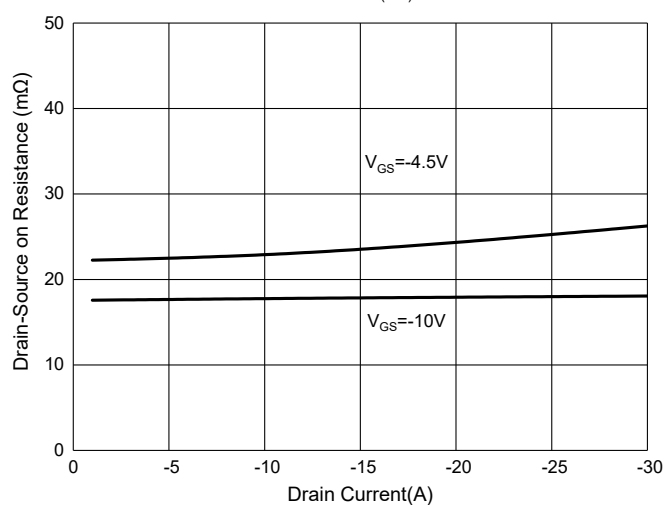


Fig. 4 - Normalized On Resistance Characteristics

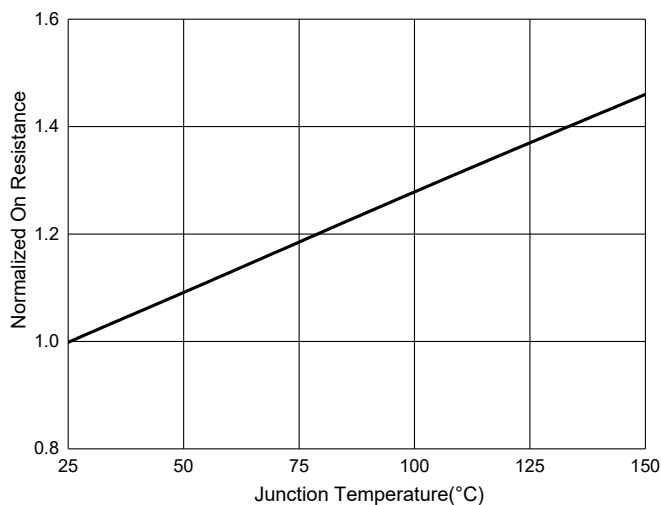


Fig. 5 - Capacitance Characteristics

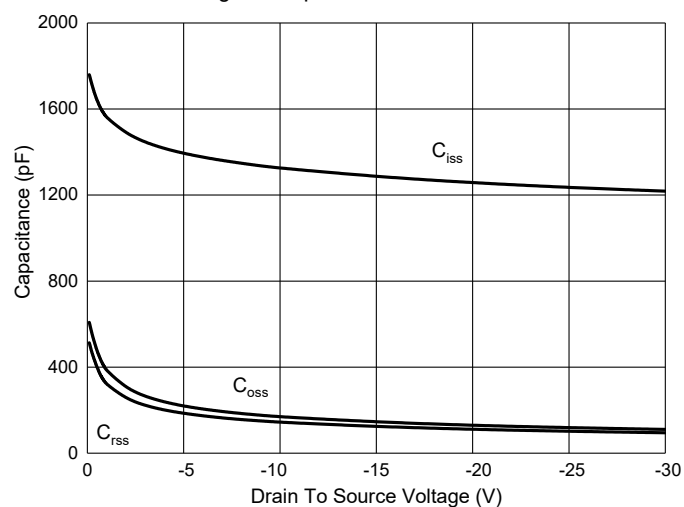
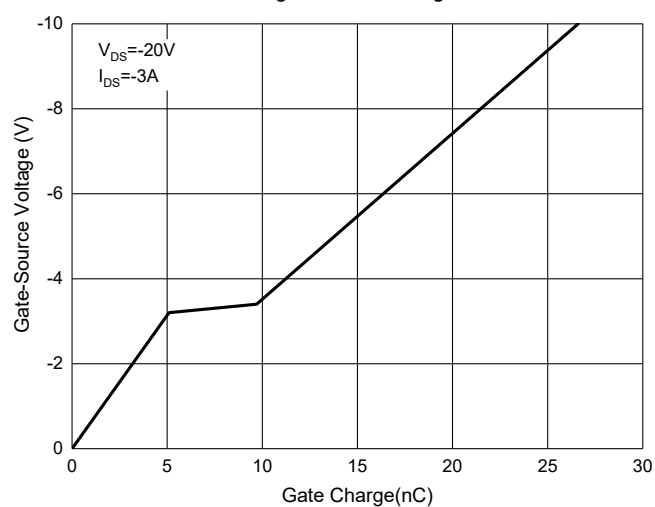


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

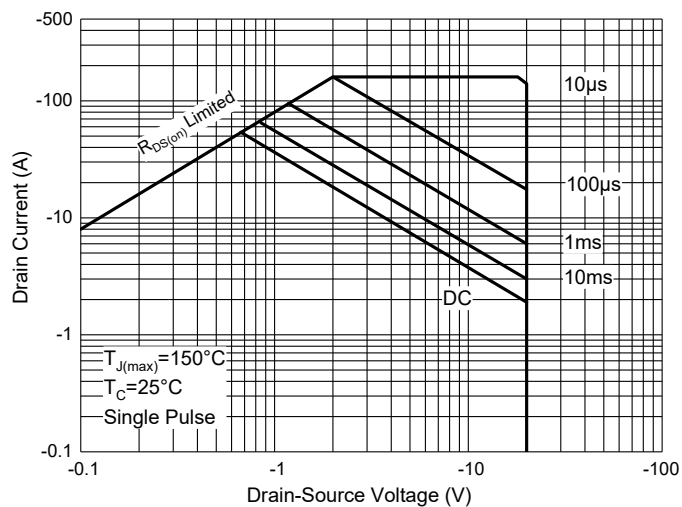
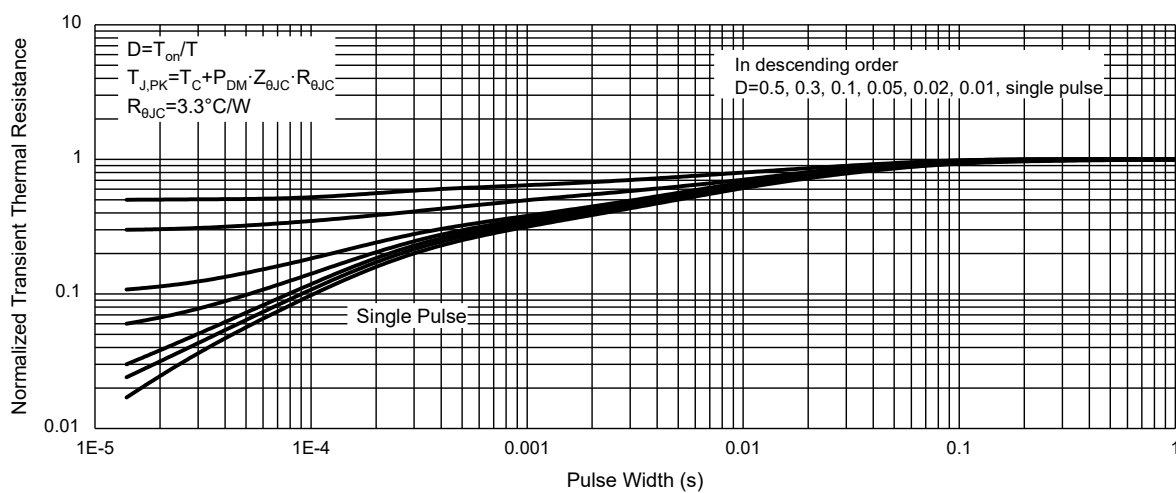


Fig. 8 - Normalized Maximum Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel

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