

Features

- Split Gate Trench MOSFET Technology
- Low $R_{DS(on)}$ & FOM
- Low C_{rss}
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- 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

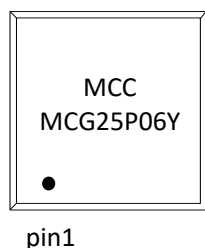
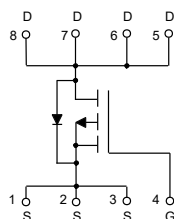
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 20°C/W Junction to Ambient($t \leq 10s$)
- Thermal Resistance: 50°C/W Junction to Ambient(Steady-State)
- Thermal Resistance: 1.7°C/W Junction to Case(Steady-State)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-25	A
Pulsed Drain Current ⁽²⁾	I_{DM}	-75	A
Total Power Dissipation ⁽³⁾	P_D	60	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E_{AS}	81	mJ

Note:

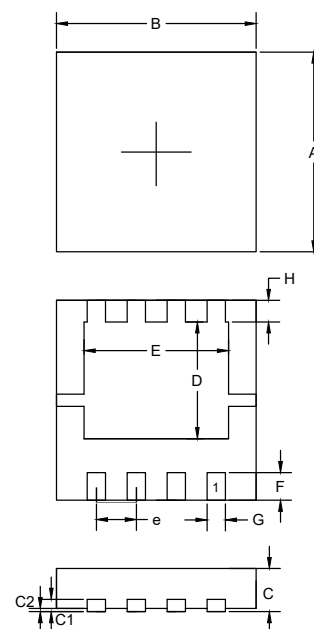
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_D is based on max. junction temperature, using junction-case thermal resistance.
4. $V_{DD}=50V$, $R_G=25\Omega$, $L=0.5mH$, $I_{AS}=18A$.

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	-60			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.5	-2.1	-2.7	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A		38	50	mΩ
		V _{GS} =-4.5V, I _D =-10A		48	65	mΩ
Diode Characteristics						
Continuous Body Diode Current	I _S				-25	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-20A		-0.95	-1.3	V
Reverse Recovery Time	t _{rr}	I _S =-20A, di/dt=100A/μs		20.2		ns
Reverse Recovery Charge	Q _{rr}			8.2		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1MHz		1100		pF
Output Capacitance	C _{oss}			350		
Reverse Transfer Capacitance	C _{rss}			28		
Total Gate Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V, I _D =-20A		18.7		nC
Gate-Source Charge	Q _{gs}			4.7		
Gate-Drain Charge	Q _{gd}			3.0		
Turn-On Delay Time	t _{d(on)}	V _{DS} =-30V, V _{GS} =-10V, R _G =6Ω		7.5		ns
Turn-On Rise Time	t _r			39.5		
Turn-Off Delay Time	t _{d(off)}			43.6		
Turn-Off Fall Time	t _f			55.1		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

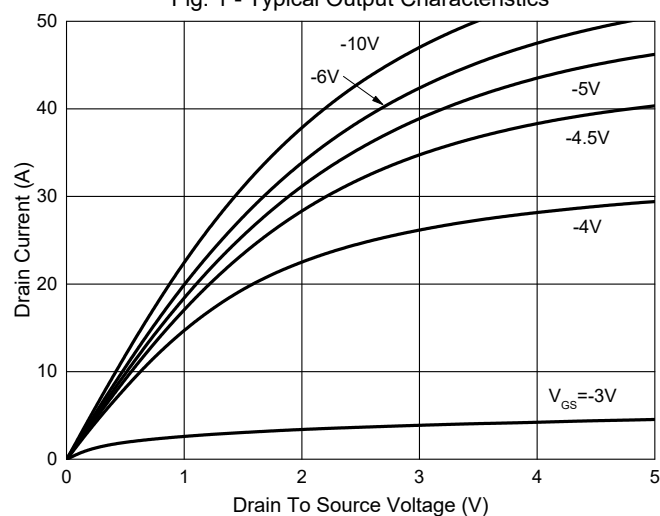


Fig. 2 - Transfer Characteristics

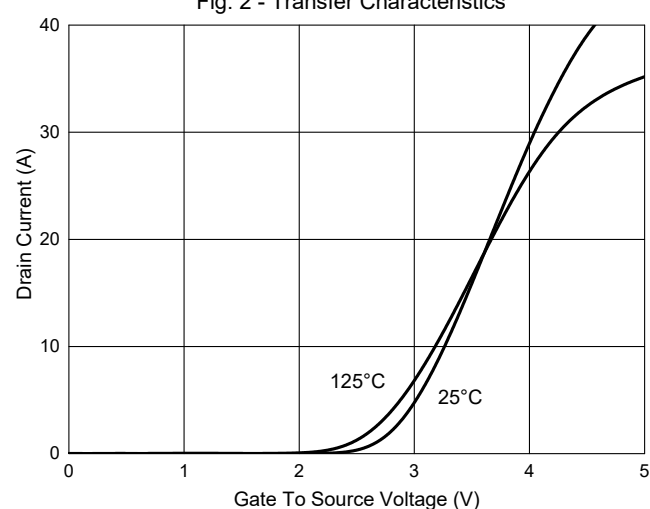


Fig. 3 - $R_{DS(ON)} - I_D$

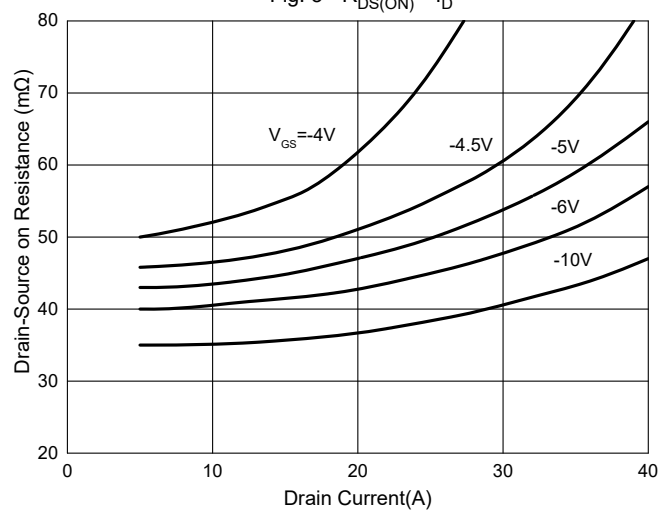


Fig. 4 - Normalized On Resistance Characteristics

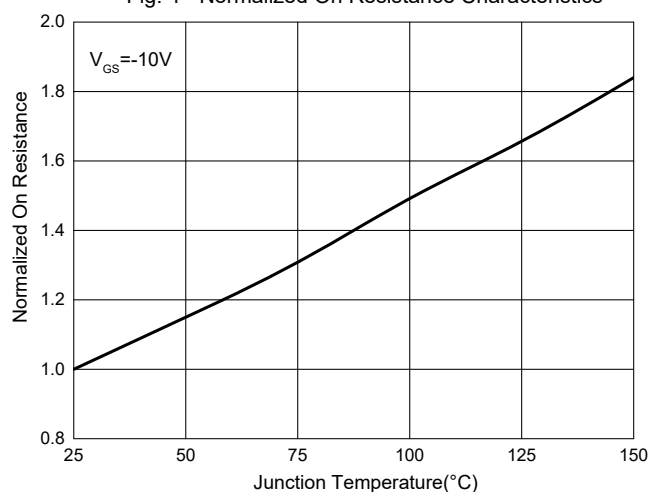


Fig. 5 - Capacitance Characteristics

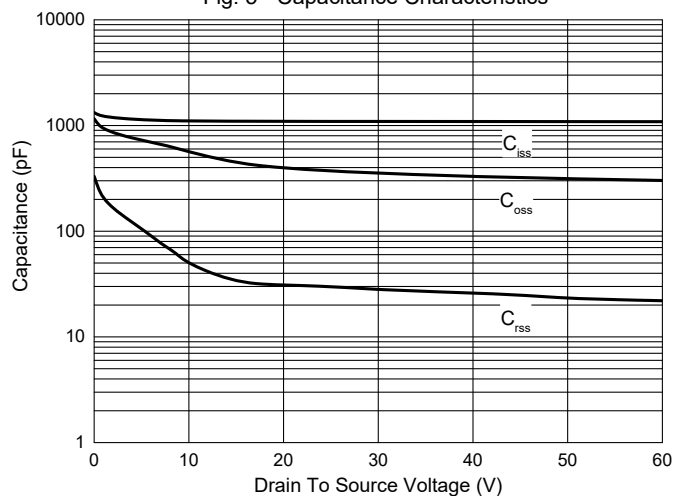
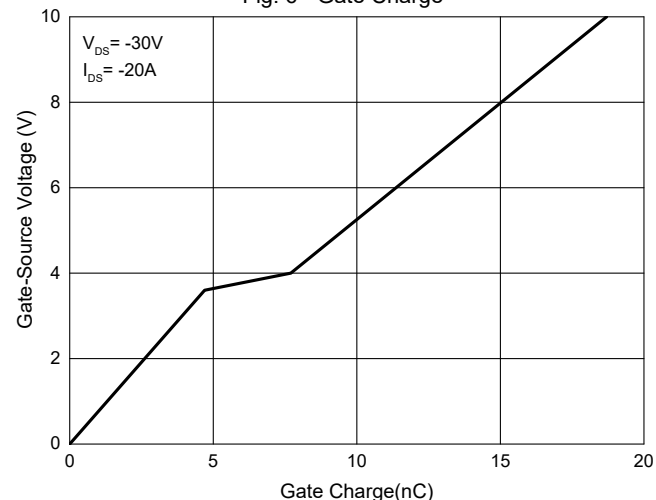


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

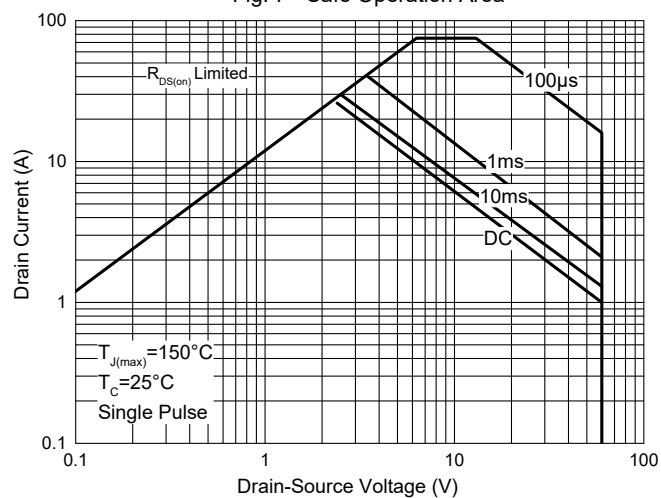
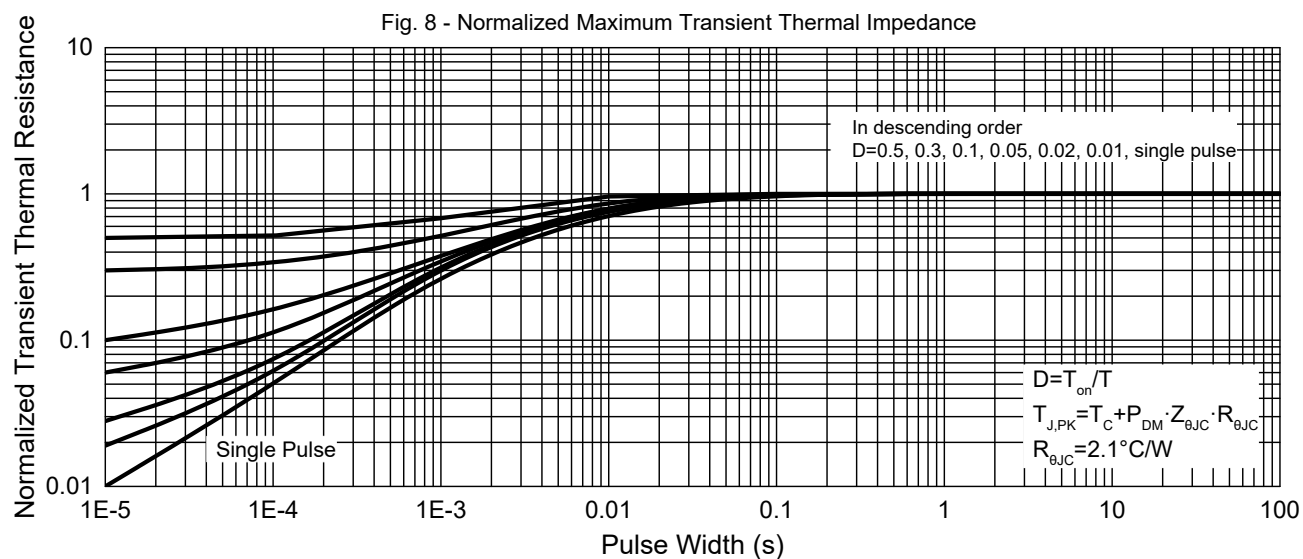


Fig. 8 - Normalized Maximum Transient Thermal Impedance



Ordering Information

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

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