Features

- Very Low FOM $R_{DS(on)}$ x Qg
- Moisture Sensitivity Level 3
- 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)

N-CHANNEL MOSFET

Maximum Ratings

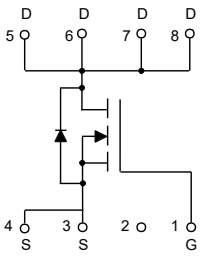
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient (Note2)
- Thermal Resistance: 0.7°C/W Junction to Case

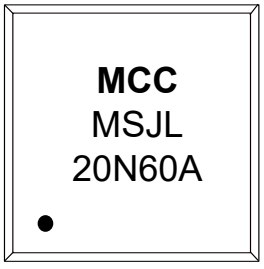
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	600	V
Gate-Source Volltage		V_{GS}	±30	V
Continuous Drain Current	T_C=25°C	I_D	20	A
	T_C=100°C		12.6	
Pulsed Drain Current (Note 3)		I_{DM}	80	A
Total Power Dissipation(Note4)		P_D	178	W
Avalanche Energy (Note 5)		E_{AS}	120	mJ

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 $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. T_J=25°C, V_{DD}=50V, V_{GS}=10V, R_G=25Ω, L=79mH.

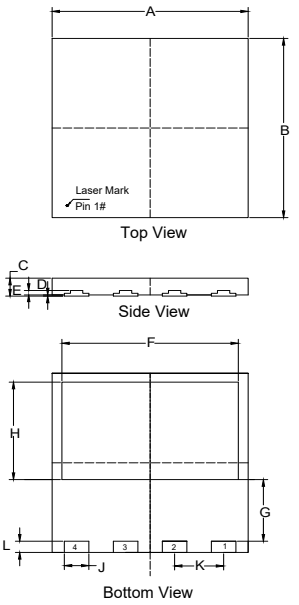
Internal Structure and Marking Code





Pin1

DFN8080A



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.311	0.319	7.90	8.10	
B	0.311	0.319	7.90	8.10	
C	0.030	0.037	0.75	0.95	
D	0.000	0.002	0.00	0.05	
E	0.004	0.012	0.10	0.30	
F	0.280	0.287	7.10	7.30	
G	0.104	0.112	2.65	2.85	
H	0.167	0.175	4.25	4.45	
J	0.035	0.043	0.90	1.10	
K	0.079		2.00		BSC
L	0.016	0.024	0.40	0.60	

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	600			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=600V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2	3	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=7.3A		175	219	mΩ
Gate Resistance	R_g	f=1MHz, Open drain		8		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				20	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=20A			1.4	V
Reverse Recovery Time	t_{rr}	I_F=20A, dI_F/dt=100A/μs		363		ns
Reverse Recovery Charge	Q_{rr}			5.6		μC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		1468		pF
Output Capacitance	C_{oss}			1503		
Reverse Transfer Capacitance	C_{rss}			39		
Total Gate Charge	Q_g	V_{DS}=480V,V_{GS}=10V,I_D=20A		39		nC
Gate-Source Charge	Q_{gs}			9		
Gate-Drain Charge	Q_{gd}			16		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=480V,V_{GS}=10V, I_D=10A, R_G=25Ω		31		ns
Turn-On Rise Time	t_r			61		
Turn-Off Delay Time	$t_{d(off)}$			176		
Turn-Off Fall Time	t_f			64		

Curve Characteristics

Fig.1 - Typical Output Characteristics

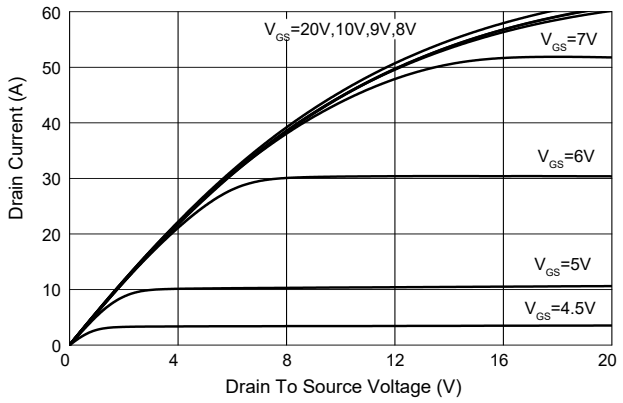


Fig.2 - Transfer Characteristic

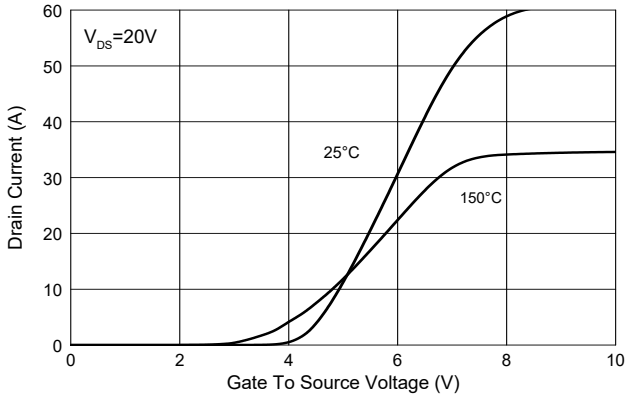


Fig.3 - $R_{DS(ON)}$ - V_{GS}

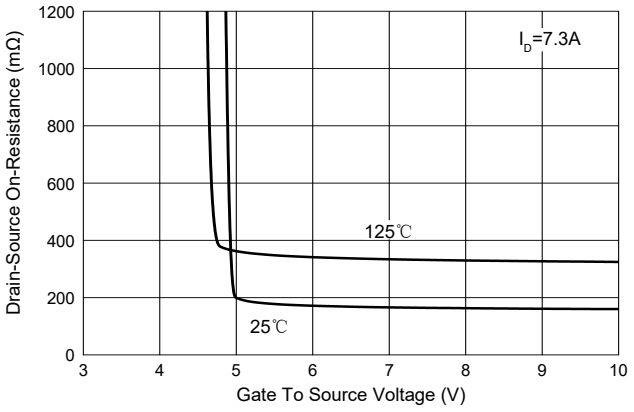


Fig.4 - $R_{DS(ON)}$ - I_D

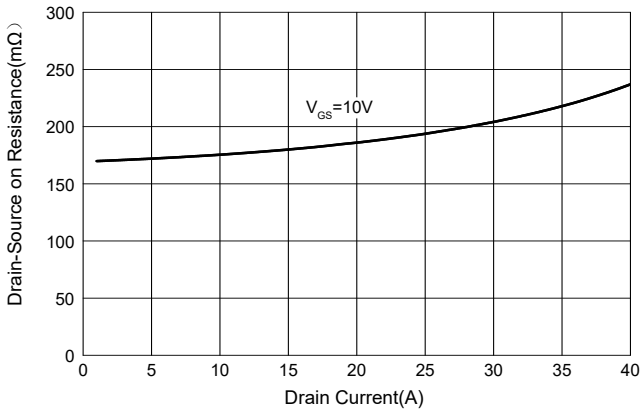


Fig.5 - Capacitance Characteristics

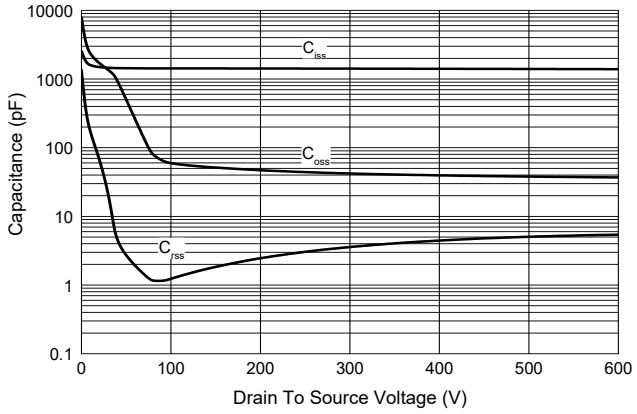
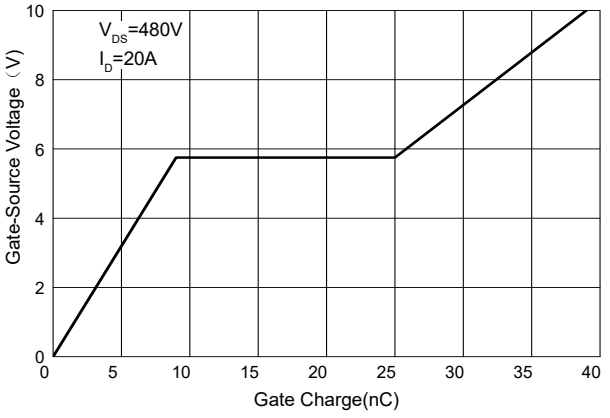


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

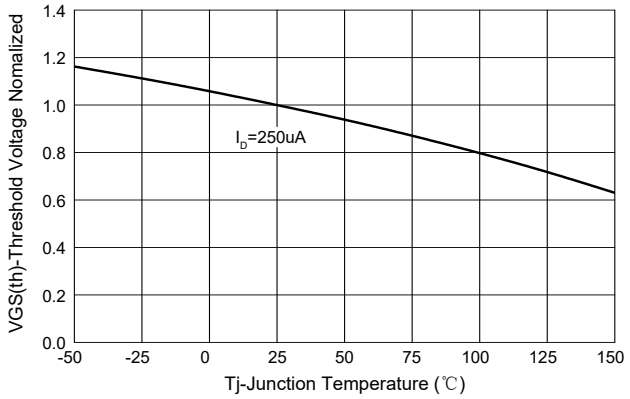


Fig.8 - Normalized On Resistance Characteristics

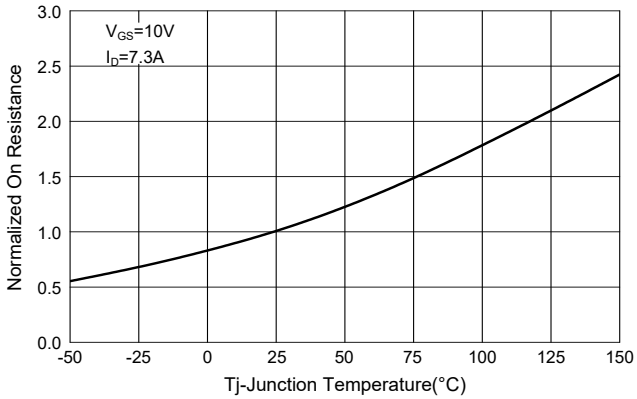


Fig.9 - I_S - V_{SD}

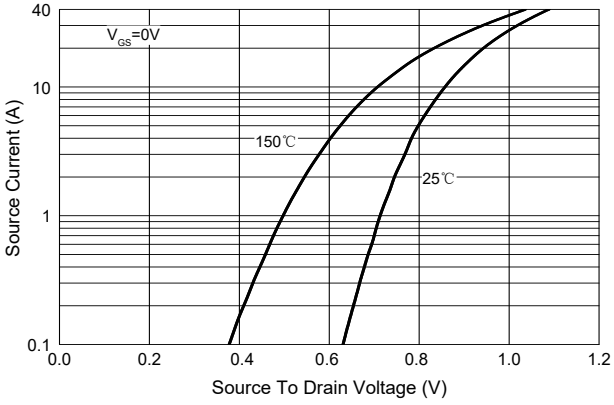


Fig.10 - Drain Current

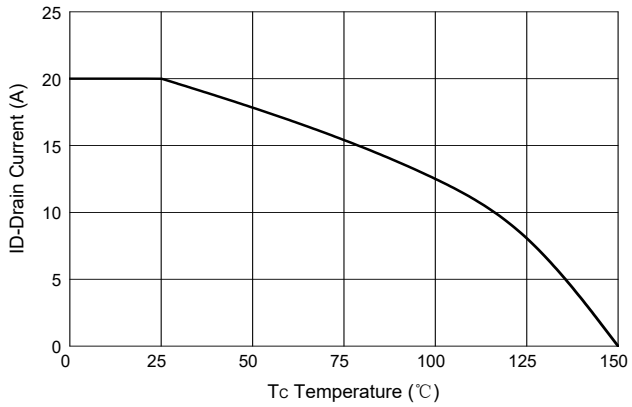
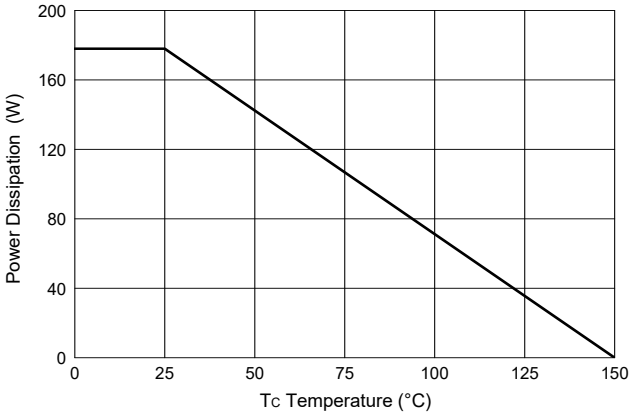


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

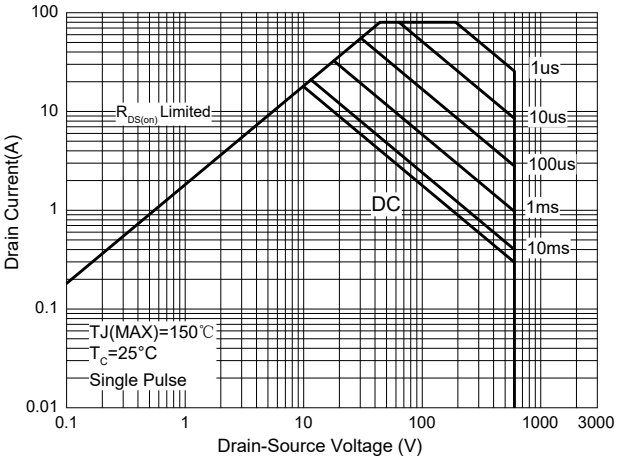
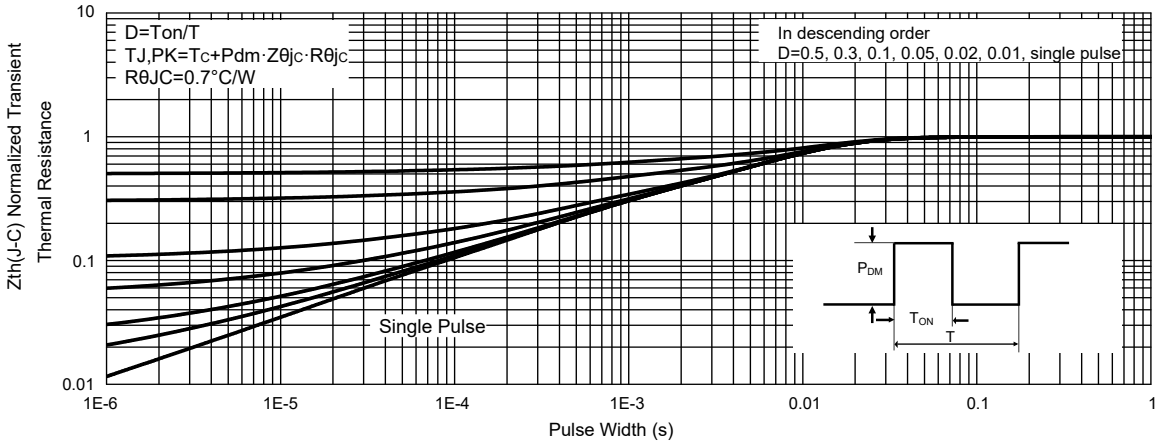


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

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