

Features

- Low Power Loss by High Speed Switching and Low On-Resistance
- Super Junction technology for High Voltage Application
- Moisture Sensitivity Level 1
- 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)

Maximum Ratings

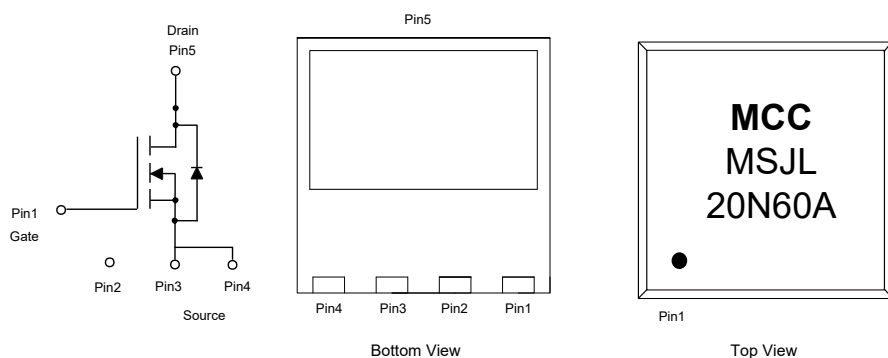
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient (Note2)
- Thermal Resistance: 0.7°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	20	A
	$T_C=100^\circ\text{C}$	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:

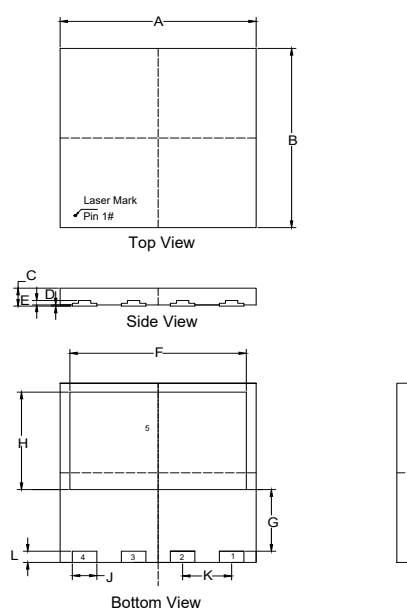
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $I_{AS}=1.75\text{A}$.

Internal Structure and Marking Code



N-CHANNEL MOSFET

DFN8080A



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

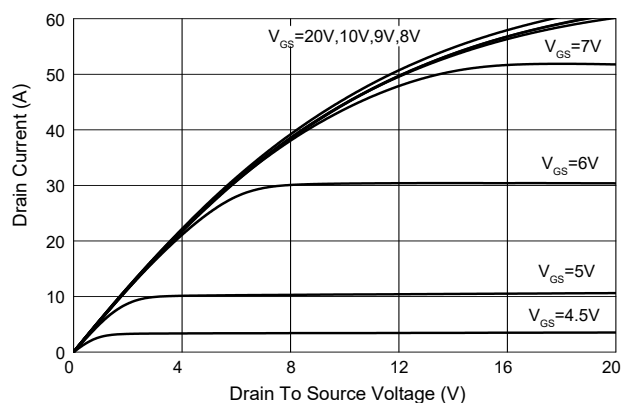


Fig.2 - Transfer Characteristic

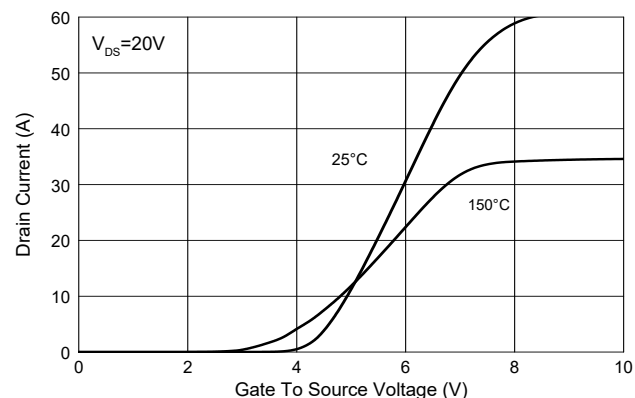


Fig.3 - $R_{DS(ON)} - V_{GS}$

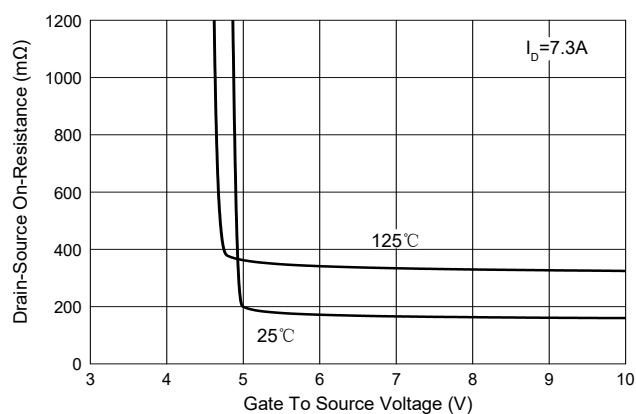


Fig.4 - $R_{DS(ON)} - I_D$

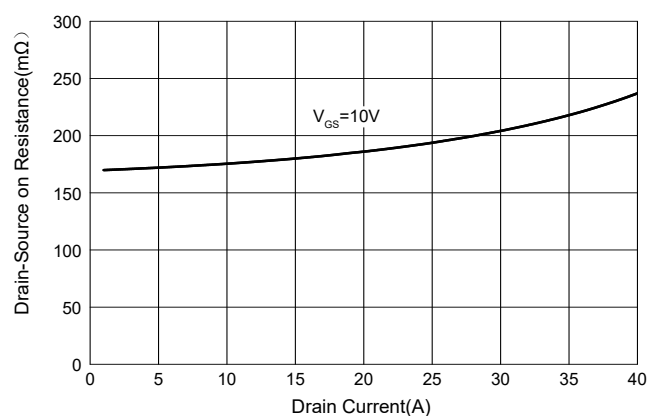


Fig.5 - Capacitance Characteristics

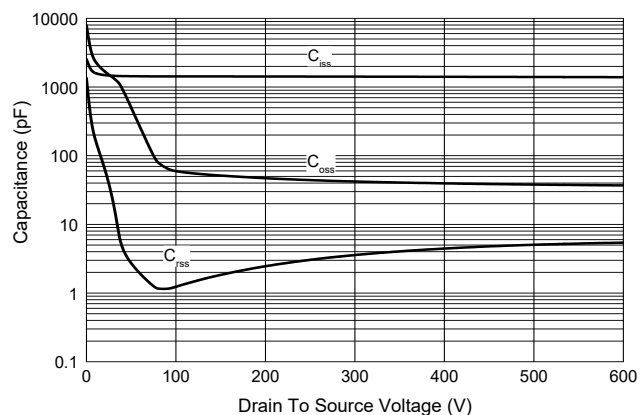
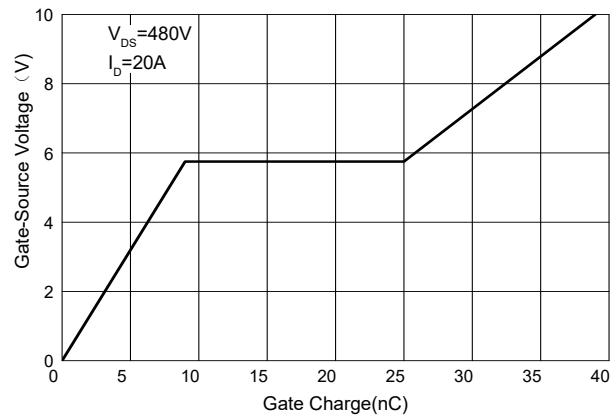


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

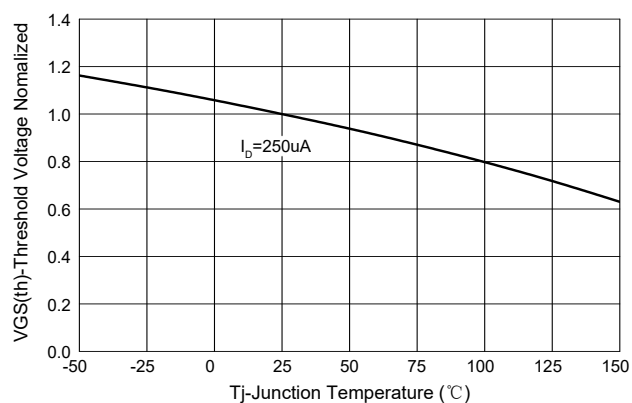


Fig.8 - Normalized On Resistance Characteristics

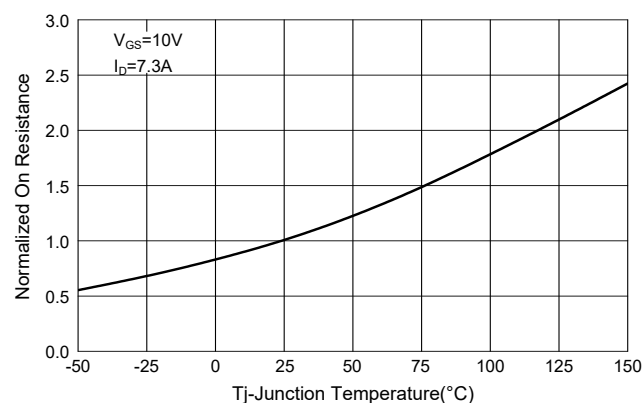


Fig.9 - I_S - V_{SD}

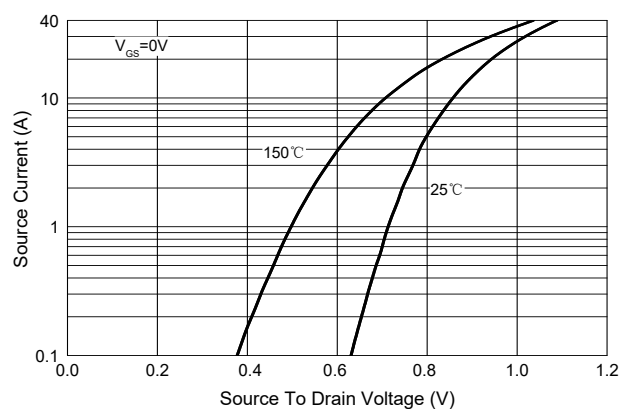


Fig.10 - Drain Current

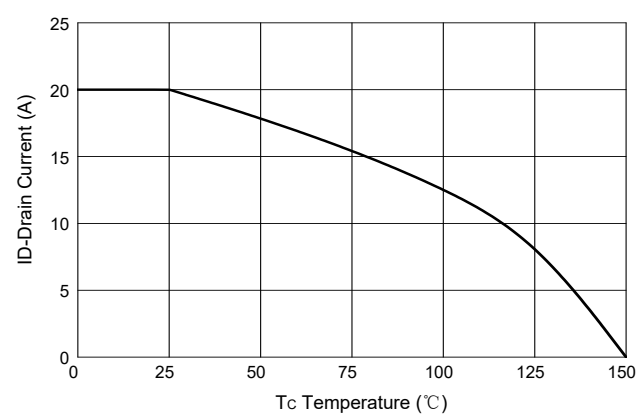
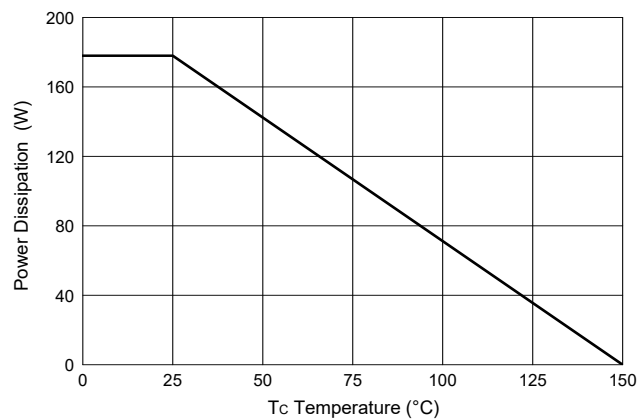


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

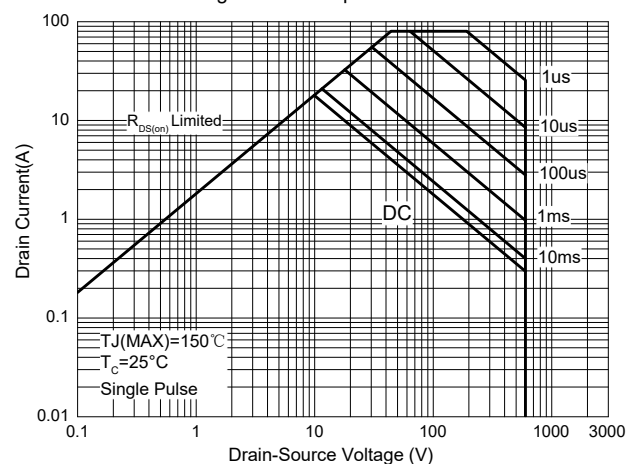
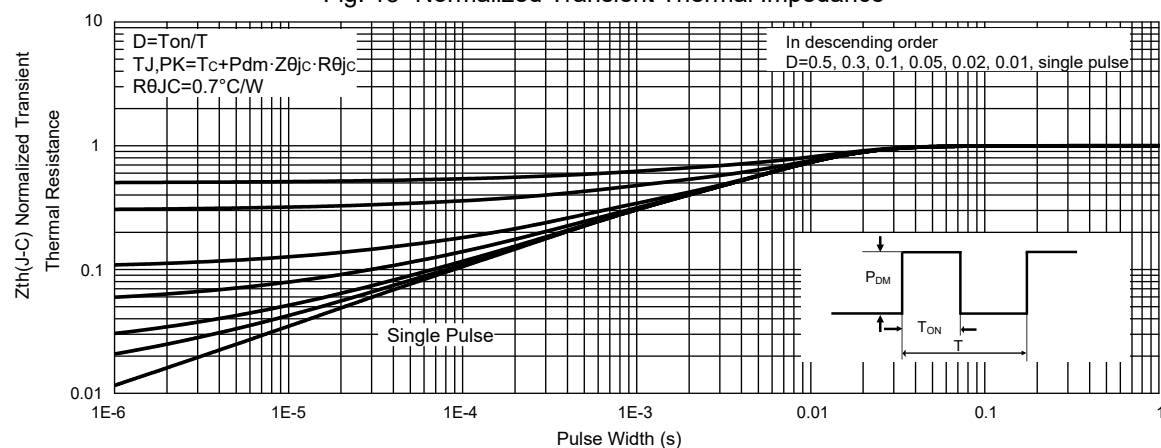


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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