

N-Channel 100 V (D-S) Super Junction MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (mΩ)(Typ.)	I _D (A) ^a	Q _g (Typ.)
100	6.3 at V _{GS} = 10 V	105	37 nC

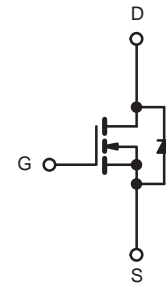
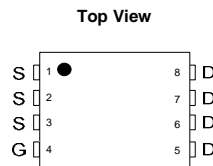
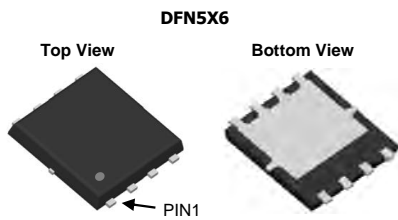
FEATURES

- DT-SJ Power MOSFET
- Very low on-resistance
- 100 % Rg and UIS Tested
- Fast switching



APPLICATIONS

- Power Management
- Motor Drivers
- DC-DC Converters



N-Channel MOSFET

ORDERING INFORMATION					
Part Number	Package Type	Form	# of Pins	MSL	Qty(pcs)
DTQ6080N10SJ	DFN5X6-8L	Reel	8	3	5000

ABSOLUTE MAXIMUM RATINGS (T _A = 25 °C, unless otherwise noted)				
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	± 20	
Continuous Drain Current (T _J = 150 °C)	T _C = 25 °C	I _D	105	A
	T _C = 100 °C		65	
Pulsed Drain Current (t = 300 μs)		I _{DM}	400	
Single Pulse Avalanche Current	L = 0.1 mH	I _{AS}	64	
Single Pulse Avalanche Energy		E _{AS}	205	mJ
Maximum Power Dissipation	T _C = 25 °C	P _D	125	W
	T _C = 100 °C		80	
	T _A = 25 °C		2.1 ^{b, c}	
	T _A = 100 °C		2.84 ^{b, c}	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Soldering Recommendations (Peak Temperature) ^{d, e}			260	

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^{b, f}	t ≤ 10 s	R _{thJA}	40	60	°C/W
Maximum Junction-to-Case (Drain)	Steady State	R _{thJC}	0.8	1	

Notes:

- Based on T_C = 25 °C.
- Surface mounted on 1" x 1" FR4 board.
- t = 10 s.
- The DFN5X6 is a leadless package. The end of the lead terminal is exposed copper (not plated) as a result of the singulation process in manufacturing. A solder fillet at the exposed copper tip cannot be guaranteed and is not required to ensure adequate bottom side solder interconnection.
- Rework conditions: manual soldering with a soldering iron is not recommended for leadless components.
- Maximum under steady state conditions is 70 °C/W.

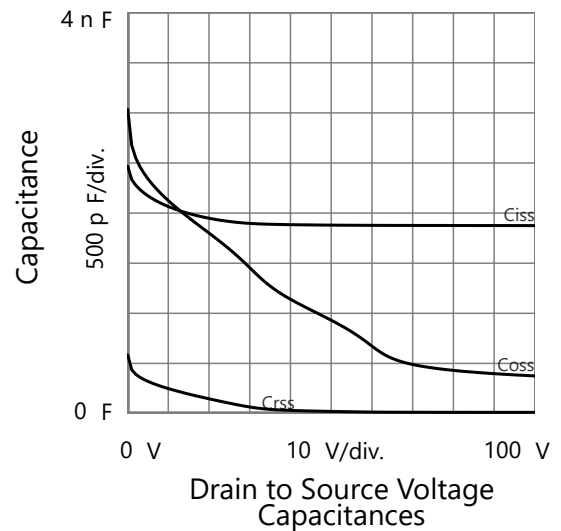
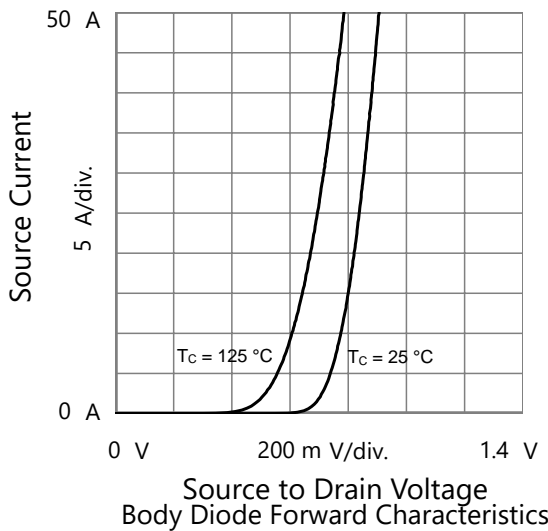
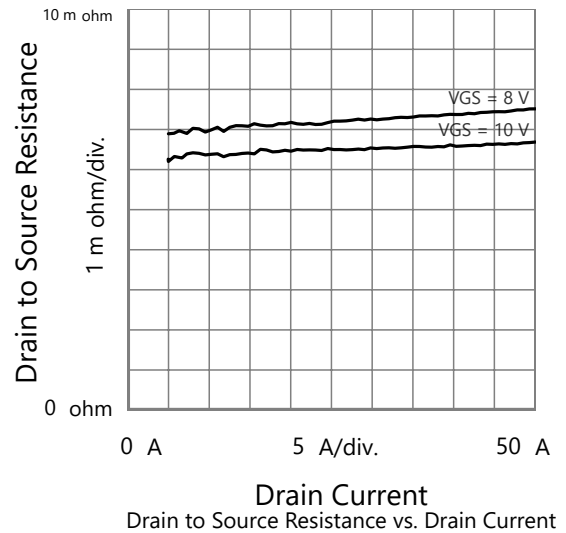
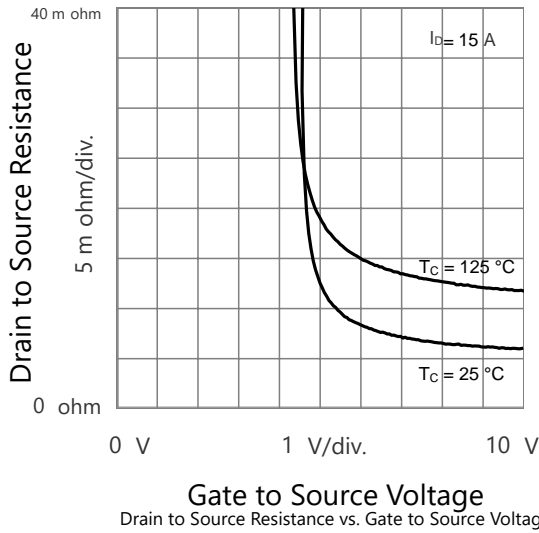
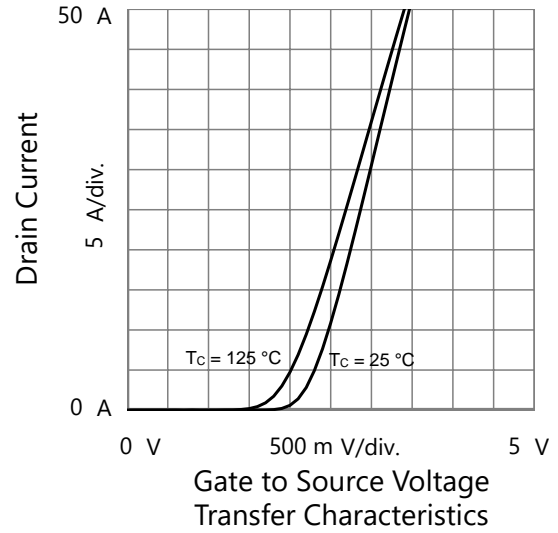
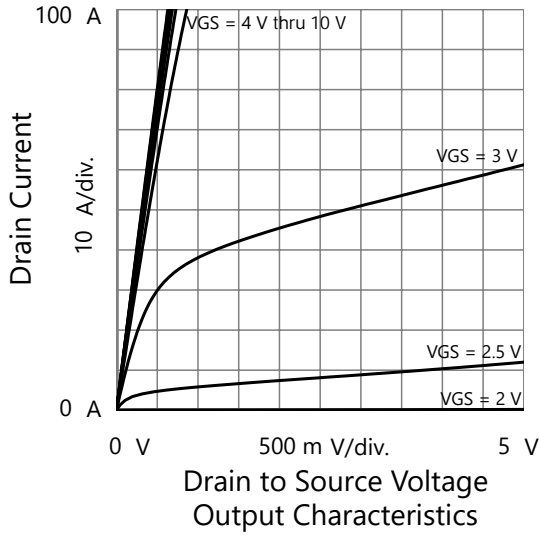
SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Static						
Drain-Source Breakdown Voltage	V_{DS}	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	1	-	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$	-	-	± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}$	-	-	1	μA
		$V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}, T_J = 85\text{ }^\circ\text{C}$	-	-	10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 10\text{ V}, V_{GS} = 10\text{ V}$	105	-	-	A
Drain-Source On-State Resistance ^a	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 15\text{ A}$	-	6.3	8.0	m Ω
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10\text{ V}, I_D = 15\text{ A}$	-	65	-	S
Dynamic ^b						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 50\text{ V}, f = 1\text{ MHz}$	-	1880	-	pF
Output Capacitance	C_{oss}		-	931	-	
Reverse Transfer Capacitance	C_{rss}		-	21	-	
Total Gate Charge ^c	Q_g	$V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 15\text{ A}$	-	37	-	nC
Gate-Source Charge ^c	Q_{gs}		-	4.2	-	
Gate-Drain Charge ^c	Q_{gd}		-	8.5	-	
Gate Resistance	R_g	$f = 1\text{ MHz}$	-	2	-	Ω
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 50\text{ V}, R_g = 6\text{ }\Omega$ $I_D = 15\text{ A}, V_{GEN} = 10\text{ V},$	-	15	-	ns
Rise Time ^c	t_r		-	33	-	
Turn-Off Delay Time ^c	$t_{d(off)}$		-	61	-	
Fall Time ^c	t_f		-	28	-	
Drain-Source Body Diode Ratings and Characteristics ^b ($T_C = 25\text{ }^\circ\text{C}$)						
Continuous Source Current	I_S	$T_C = 25\text{ }^\circ\text{C}$	-	-	105	A
Pulsed Source Current	I_{SM}		-	-	400	A
Forward Voltage ^a	V_{SD}	$I_F = 1\text{ A}, V_{GS} = 0\text{ V}$	-	-	1	V
Reverse Recovery Time	t_{rr}	$I_F = 15\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$	-	220	-	ns
Reverse Recovery Charge	Q_{rr}		-	480	-	nC

Notes

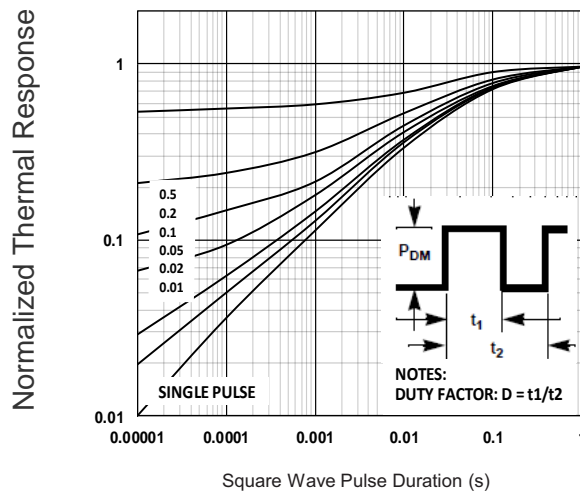
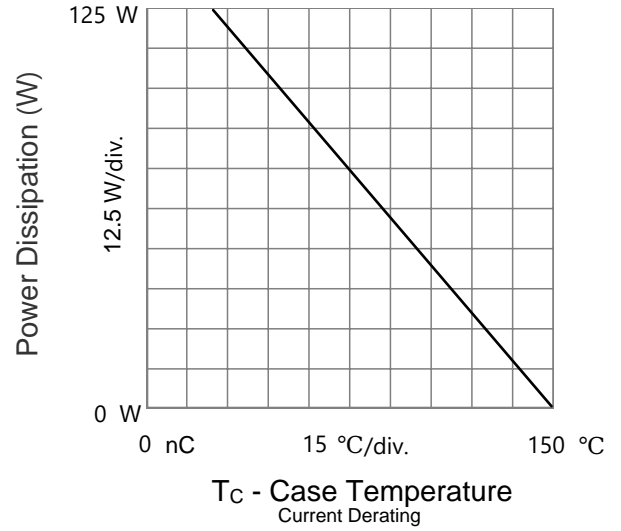
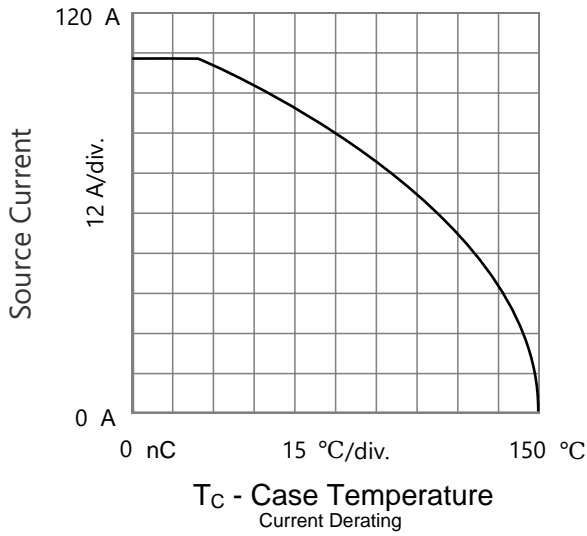
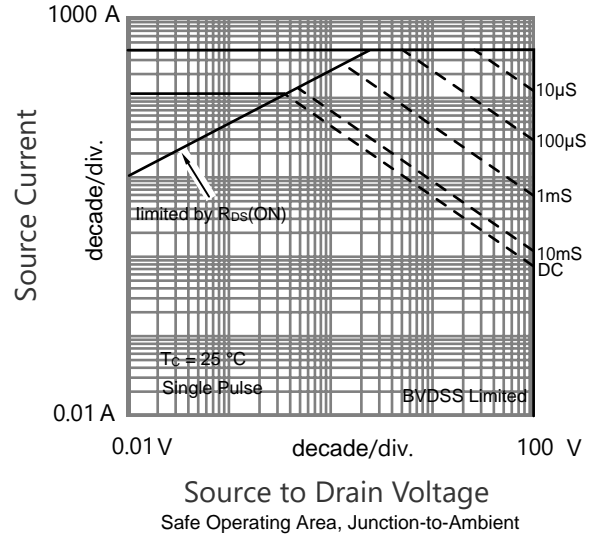
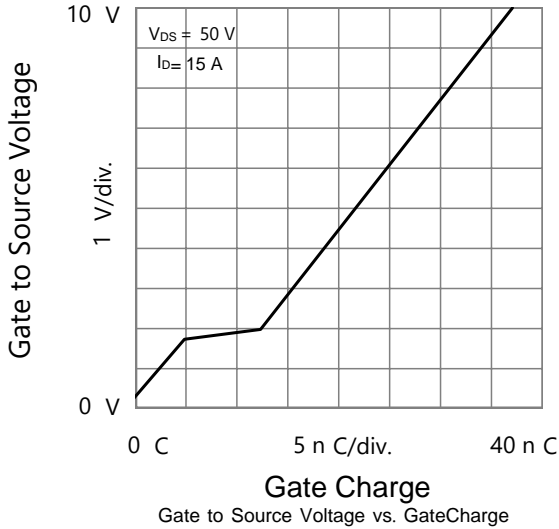
- Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.
- Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TYPICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)

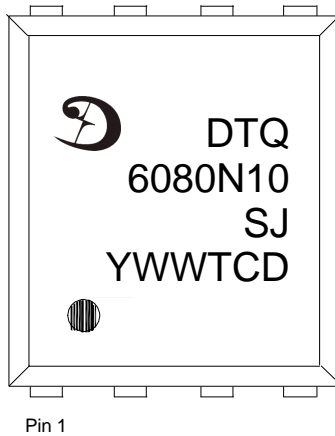


TYPICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient

Mark:



LOGO = Din_Tek Logo

DTQ&6080N10&SJ = Part Number Code

Y = Year Code

WW = Week Code

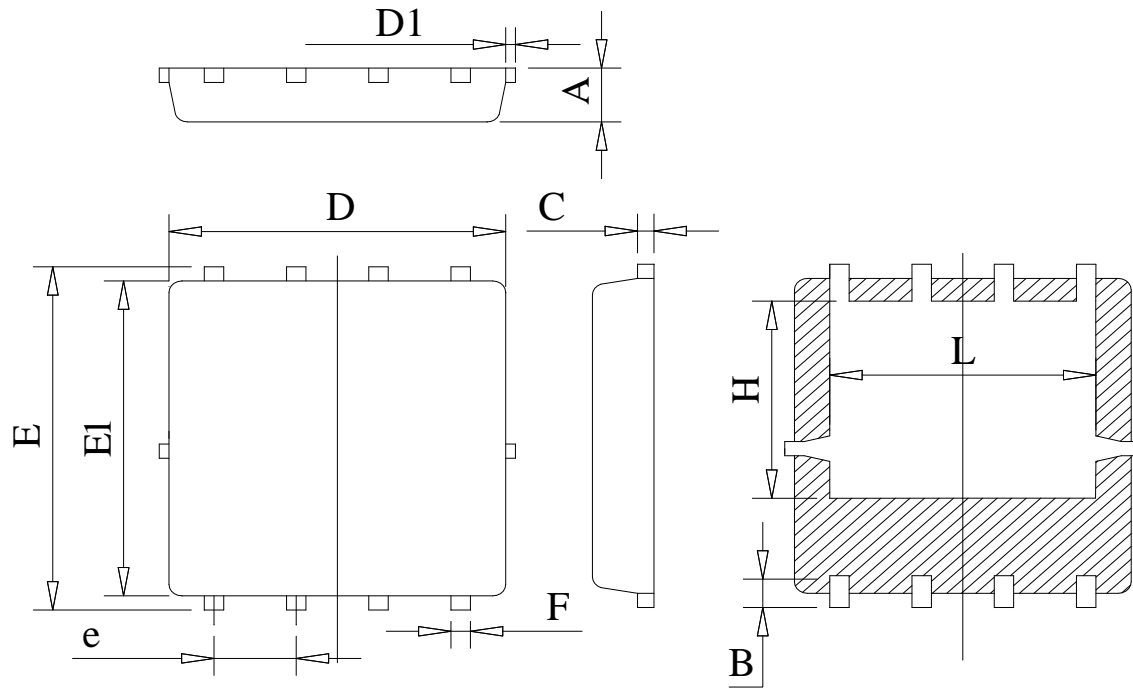
TCD = Tracking Code

NOTES:

1. Year Code : M = 2022, N = 2023, P = 2024, ...
The easily confused letter "O" does not participate in sorting
2. Week Code : Week1 = 01, Week2 = 02, Week3 = 03, ...

The current marking strategy is reflected. Contact your local sales representative for historical marking strategies for these packages.

DFN5*6-8L PACKAGE OUTLINE



COMMON DIMENSIONS (UNITS OF MEASURE=MILLIMETER)

Unit : mm

Symbol	Min	Typ	Max
A	0.78	0.95	1.12
B	0.45	0.58	0.78
C	0.18	0.254	0.36
D	4.70	5.20	5.45
D1			0.18
E	5.85	6.05	6.25
E1	5.38	5.55	5.98
e	1.15	1.27	1.40
F	0.18	0.30	0.52
H	3.25	3.47	3.70
L	3.75	4.00	4.25

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