Features

- Very Low FOM $R_{DS(on)} \times Q_g$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL Super-Junction Power MOSFET

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62°C/W Junction to Ambient
- Thermal Resistance: 1.6°C/W Junction to Case

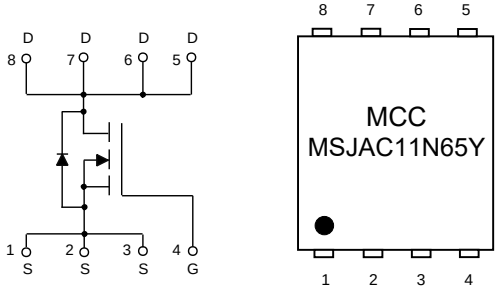
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Volltage		V_{GS}	±30	V
Continuous Drain Current		I_D	11	A
Pulsed Drain Current (Note 2)		I_{DM}	33	A
Single Pulse Avalanche Energy (Note 3)		E_{AS}	211	mJ
Avalanche Current (Note 2)		I_{AR}	1.6	A
Repetitive Avalanche Energy (Note 2)		E_{AR}	0.32	mJ
Total Power Dissipation	T_C=25°C	P_D	78	W

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 Maximum Junction Temperature.

3. I_{AS}=1.6A, V_{DD}=50V, R_G=25Ω, Starting T_J=25°C .

Internal Structure and Marking Code



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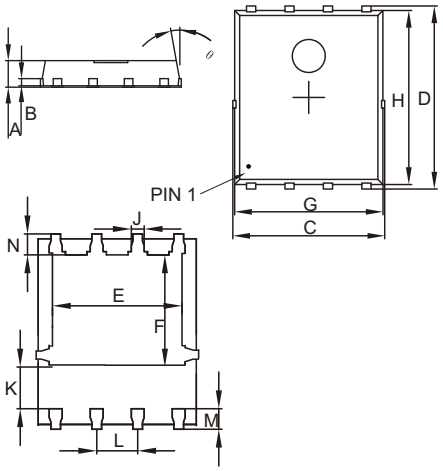


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.031	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.193	0.222	4.90	5.64	
D	0.232	0.250	5.90	6.35	
E	0.148	0.167	3.75	4.25	
F	0.126	0.154	3.20	3.92	
G	0.189	0.213	4.80	5.40	
H	0.222	0.239	5.65	6.06	
K	0.045	0.059	1.15	1.50	
J	0.012	0.020	0.30	0.50	
L	0.046	0.054	1.17	1.37	
M	0.012	0.028	0.30	0.71	
N	0.016	0.028	0.40	0.71	

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	650			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V, V_{GS}=0V			1	μA
		V_{DS}=650V, V_{GS}=0V, T_J=150°C			100	
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.5		4	V
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=10V, I_D=5.5A		0.34	0.38	Ω
Forward tranconductance(Note 4)	g_{FS}	V_{DS}=10V, I_D=5.5A		7.8		S
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		901		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			5.5		
Total Gate Charge	Q_g	V_{DD}=520V,V_{GS}=10V,I_D=11A		21		nC
Gate-Source Charge	Q_{gs}			4.5		
Gate-Drain Charge	Q_{gd}			7		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} =400V, I_D=11A,R_G=25Ω		41		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			123		
Turn-Off Fall Time	t_f			6.4		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C=25°C			9.2	A
Pulsed Diode Forward Current	I_{SM}				29	
Body Diode Voltage	V_{SD}	I_{SD}=11A, V_{GS}=0V		0.9	1.2	V
Reverse Recovery Time	t_{rr}	V_R=520V, I_F=I_S,di_F/dt=100A/μs		280		ns
Reverse Recovery Charge	Q_{rr}			2.8		μC
Peak Reverse Recovery Current	I_{rrm}			17		A

Note 4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 1%.

5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

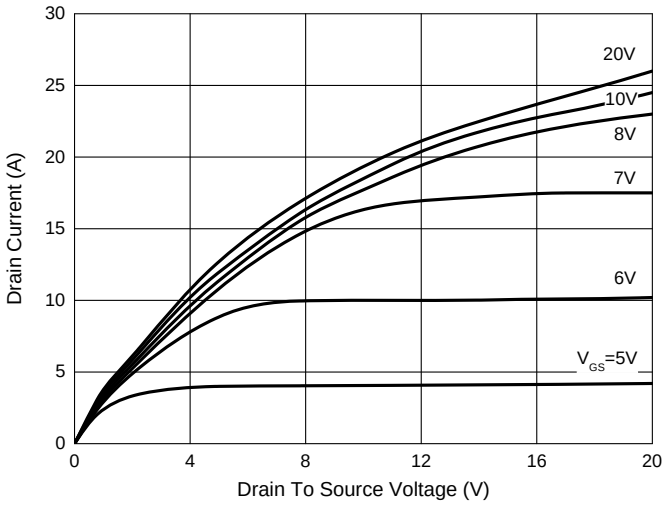


Fig. 2 - Transfer Characteristics

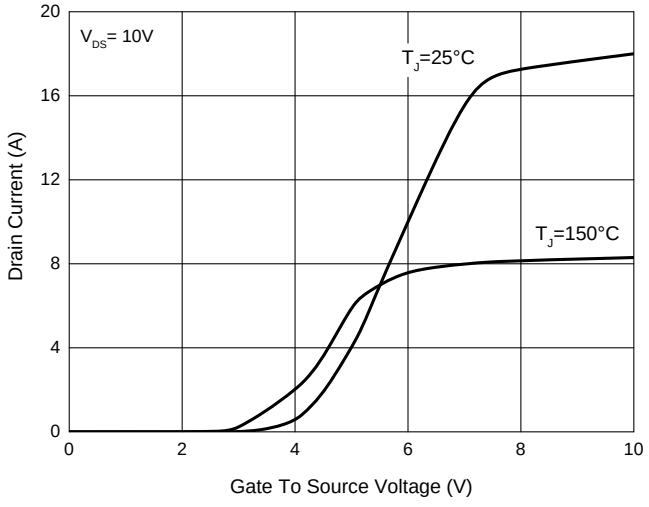


Fig. 3 - $R_{DS(ON)}$—I_D

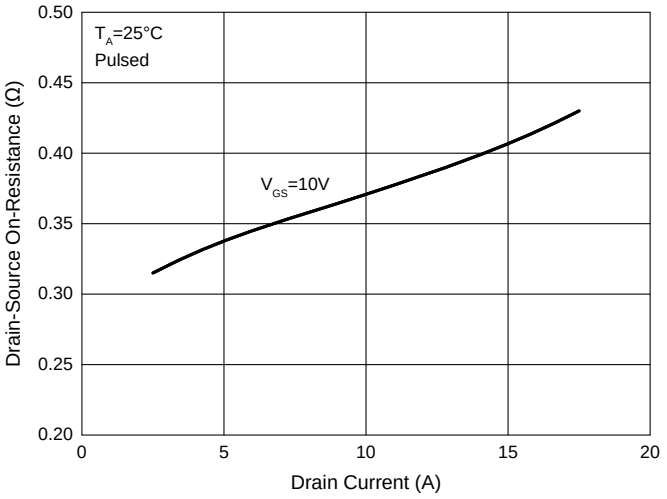


Fig. 4 - Capacitance Characteristics

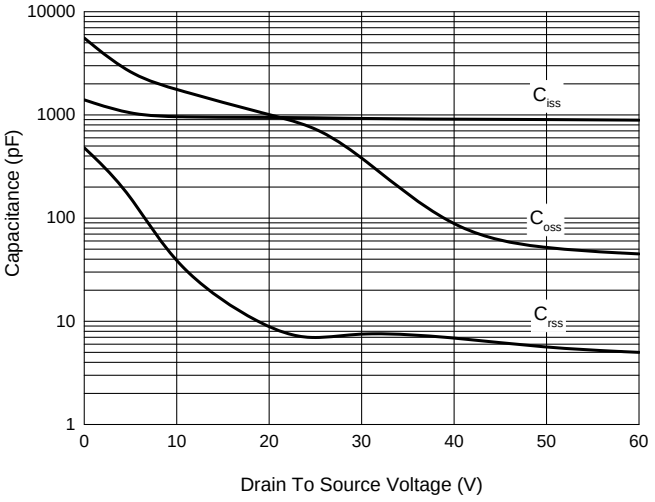


Fig. 5 - Total Gate Charge Characteristics

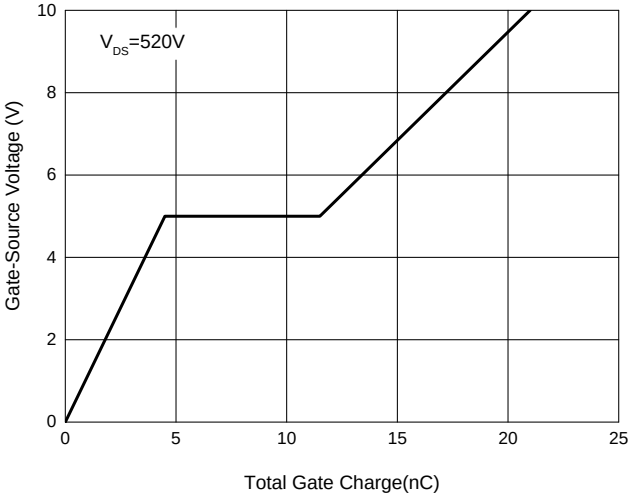
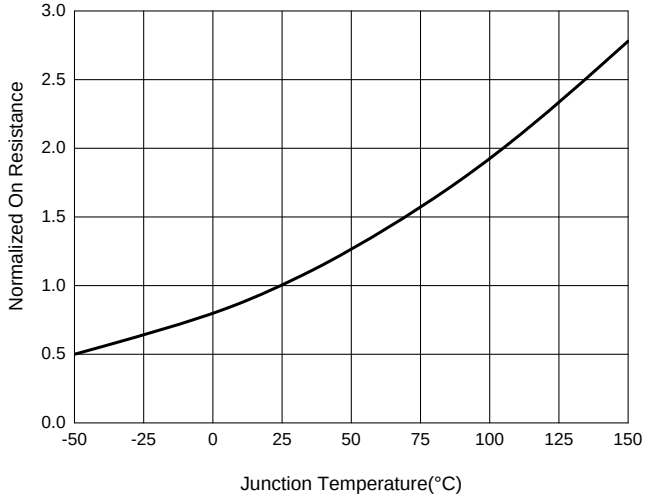


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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

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