

Features

- Advanced Super Junction Technology
- Low Power Loss by High Speed Switching
- Low On-Resistance
- 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: 0.69°C/W Junction to Case

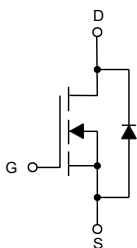
Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	800	V	
Gate-Source Voltage	V_{GS}	±30	V	
Continuous Drain Current	I_D	$T_C=25^\circ C$	17	A
		$T_C=100^\circ C$	10.8	A
Pulsed Drain Current ⁽²⁾	I_{DM}	51	A	
Avalanche Energy	E_{AS}	670	mJ	
Total Power Dissipation	P_D	181	W	
MOSFET dv/dt Ruggedness	dv/dt	50	V/ns	
Diode dv/dt Ruggedness	dv/dt	15	V/ns	

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. Pulse Width tp Limited by $T_{J,max}$

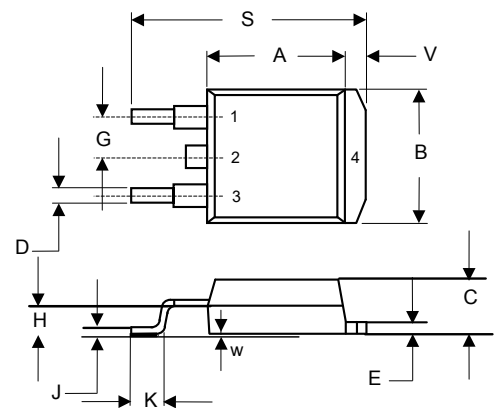
Internal Structure



1. Gate
- 2,4. Drain
3. Source

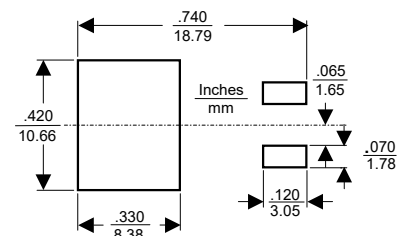
**N-CHANNEL
Super-Junction
Power MOSFET**

D2-PAK



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.320	0.359	8.13	9.14	
B	0.380	0.411	9.65	10.45	
C	0.160	0.190	4.06	4.83	
D	0.020	0.035	0.51	0.89	
E	0.045	0.055	1.14	1.40	
G	0.083	0.105	2.10	2.67	
H	0.096	0.134	2.43	3.40	
J	0.014	0.021	0.35	0.53	
K	0.090	0.131	2.29	3.32	
S	0.575	0.625	14.22	16.22	
V	0.045	0.055	1.14	1.40	
W	0.000	0.006	0.00	0.15	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	800			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=800V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=11A$		250	290	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				17	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=17A$			1.4	V
Reverse Recovery Time	t_{rr}	$I_S=17A, di/dt=100A/\mu s, V_{DD}=100V$		565		ns
Reverse Recovery Charge	Q_{rr}			9.6		nC
Reverse Recovery Current	I_{rrm}			34.1		A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		1830		pF
Output Capacitance	C_{oss}			1510		
Reverse Transfer Capacitance	C_{rss}			53.2		
Effective Output Capacitance Energy Related ⁽³⁾	$C_{o(er)}$	$V_{DS}=0V$ to 640V, $V_{GS}=0V, f=1.0MHz$		40		pF
Gate Resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1MHz$		2.05		Ω
Total Gate Charge	Q_g	$V_{DS}=640V, V_{GS}=10V, I_D=17A$		56		nC
Gate-Source Charge	Q_{gs}			10.4		
Gate-Drain Charge	Q_{gd}			22		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, R_G=25\Omega,$ $V_{DS}=400V, I_D=17A$		32		ns
Turn-On Rise Time	t_r			56.5		
Turn-Off Delay Time	$t_{d(off)}$			160		
Turn-Off Fall Time	t_f			49		

Note:3. $C_{o(er)}$ is a capacitance that gives the same stored energy as C_{OSS} while V_{DS} is rising from 0V to 80% $V_{(BR)DSS}$.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

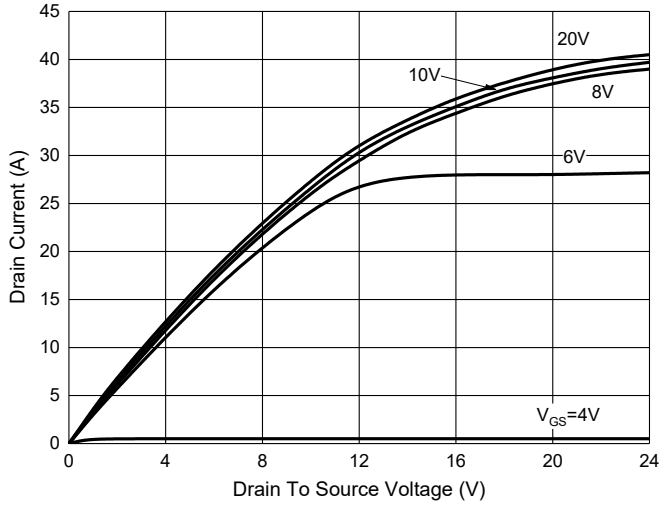


Fig. 2 - Transfer Characteristics

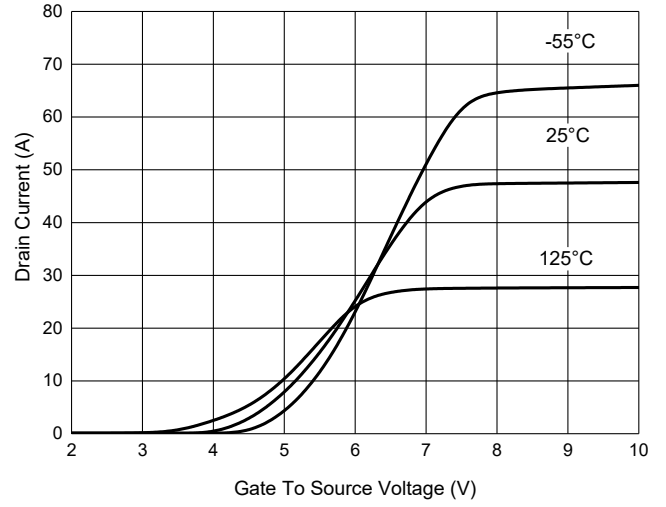


Fig. 3 - $R_{DS(ON)} - I_D$

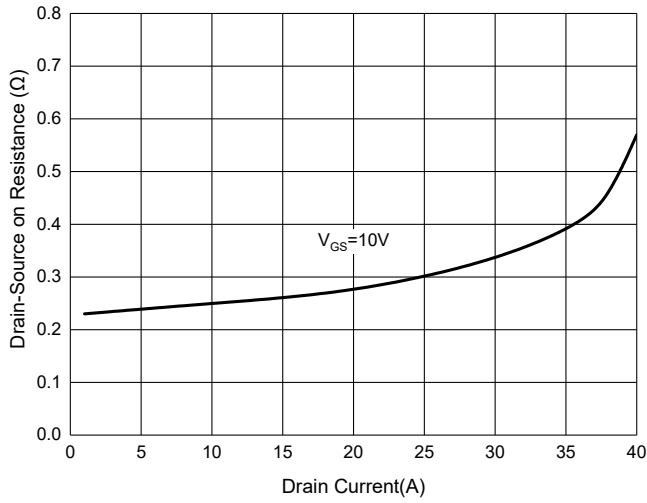


Fig. 4 - Normalized On Resistance Characteristics

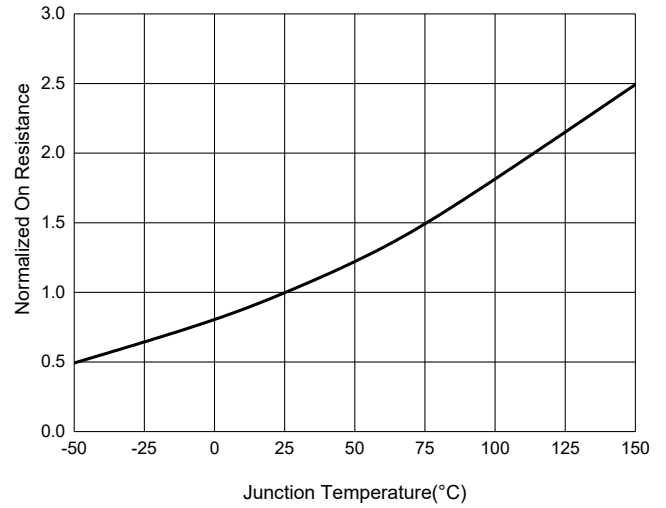


Fig. 5 - Normalized Drain-Source Breakdown Voltage

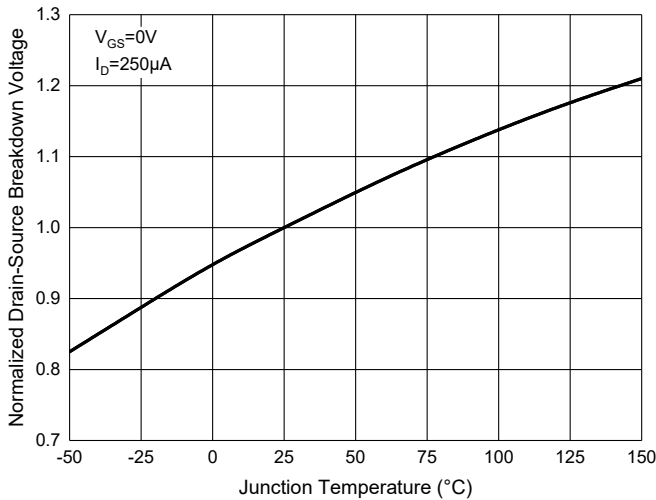
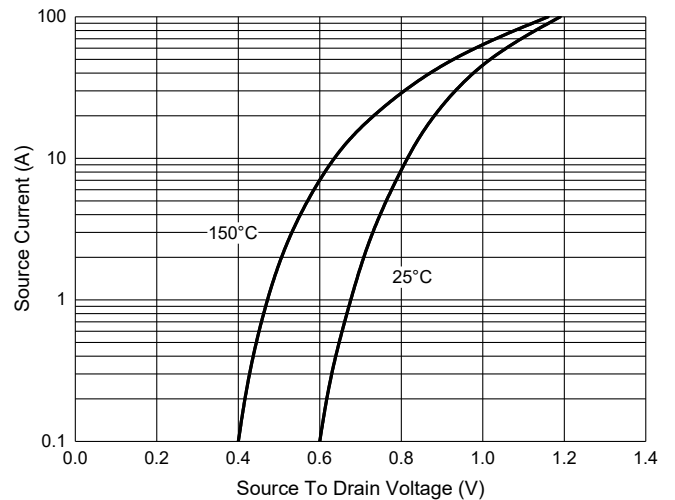


Fig. 6 - $I_S - V_{SD}$



Curve Characteristics

Fig. 7 - Capacitance Characteristics

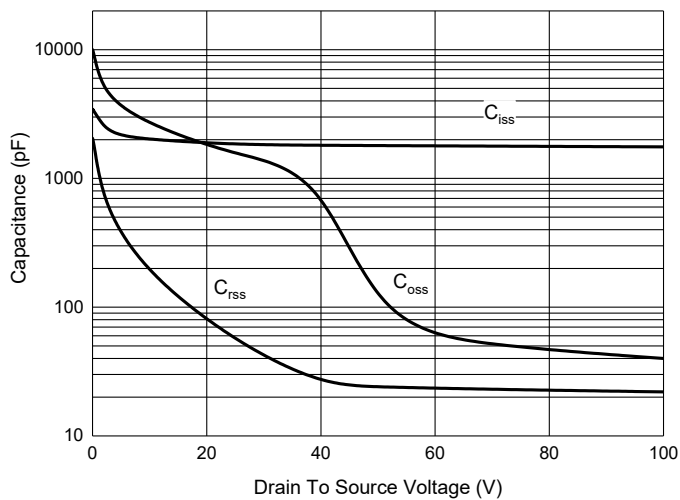


Fig. 8 - Gate Charge

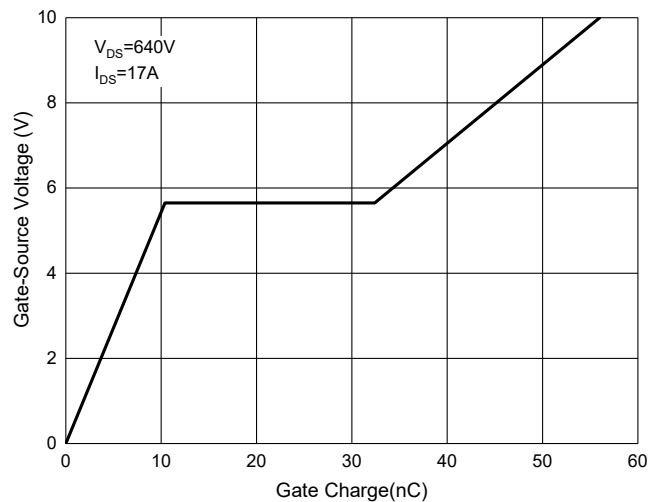
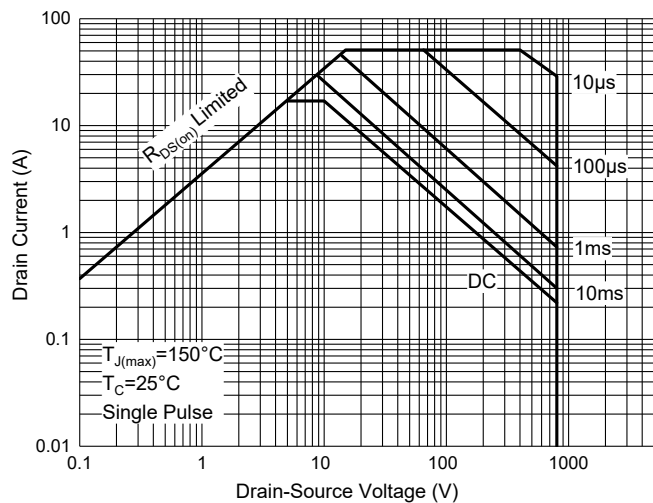


Fig. 9 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800Kpcs/Reel

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