

## Features

- Split Gate Trench MOSFET Technology
- Low  $R_{DS(on)}$  & FOM
- Excellent Stability and Uniformity
- Extremely Low Switching Loss
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

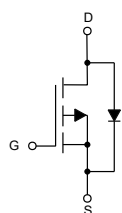
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient<sup>(Note1)</sup>
- Thermal Resistance: 1.75°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	$T_C=25^\circ\text{C}$	-18 A
		$T_C=100^\circ\text{C}$	-12 A
Pulsed Drain Current <sup>(Note2)</sup>	$I_{DM}$	-72	A
Avalanche Energy <sup>(Note3)</sup>	$E_{AS}$	100	mJ
Total Power Dissipation	$P_D$	70	W

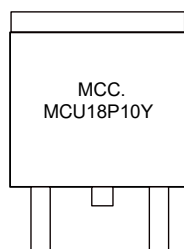
### Note:

1. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ .
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
3.  $T_J=25^\circ\text{C}$ ,  $V_{DD}=-50\text{V}$ ,  $V_G=-10\text{V}$ ,  $L=0.5\text{mH}$ ,  $R_g=25\Omega$ .

## Internal Structure and Marking Code

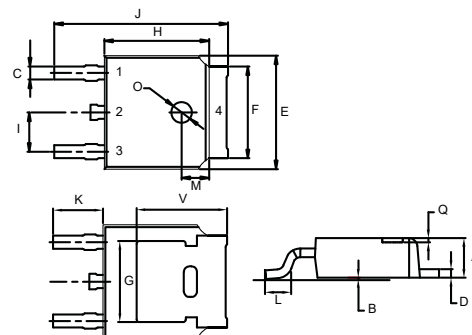


1. GATE
2. DRAIN
3. SOURCE
4. DRAIN



## P-CHANNEL MOSFET

## DPAK



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-100			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-100V, V_{GS}=0V$			-1	$\mu A$
		$V_{DS}=-100V, V_{GS}=0V, T_J=55^\circ C$			-5	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.8	-2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$		90	110	m $\Omega$
		$V_{GS}=-4.5V, I_D=-5A$		100	130	m $\Omega$
Gate Resistance	$R_g$	F=1 MHz, Open drain		11		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				-18	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-10A$			-1.5	V
Reverse Recovery Time	$t_{rr}$	$I_S=-5A, di/dt=100A/\mu s$		70		ns
Reverse Recovery Charge	$Q_{rr}$			140		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-80V, V_{GS}=0V, f=1MHz$		1050		pF
Output Capacitance	$C_{oss}$			97		
Reverse Transfer Capacitance	$C_{rss}$			18		
Total Gate Charge	$Q_g$	$V_{DS}=-50V, V_{GS}=-10V, I_D=-5A$		20		nC
Gate-Source Charge	$Q_{gs}$			3.9		
Gate-Drain Charge	$Q_{gd}$			4.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DD}=-50V, R_L=2.5\Omega$ $R_{GEN}=6\Omega$		10		ns
Turn-On Rise Time	$t_r$			30		
Turn-Off Delay Time	$t_{d(off)}$			77		
Turn-Off Fall Time	$t_f$			81		

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

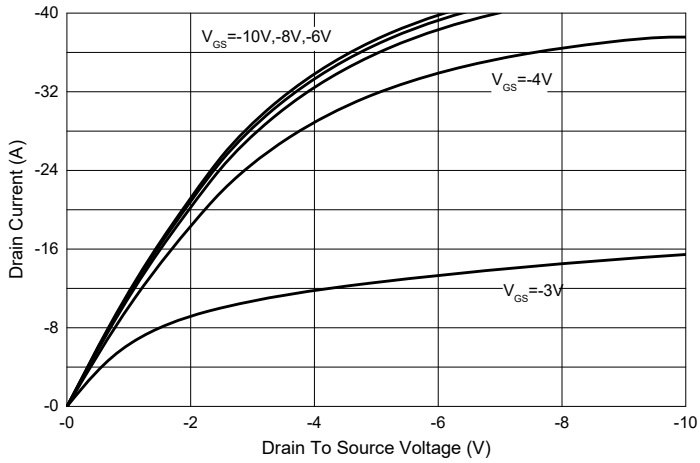


Fig. 2 - Transfer Characteristics

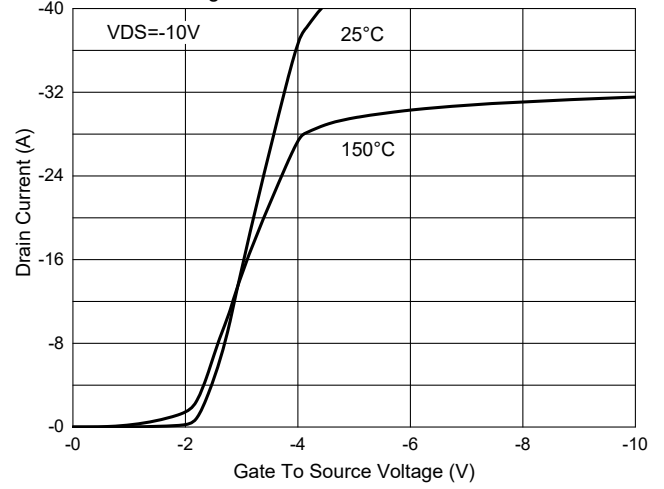


Fig. 3 -  $R_{DS(ON)} - V_{GS}$

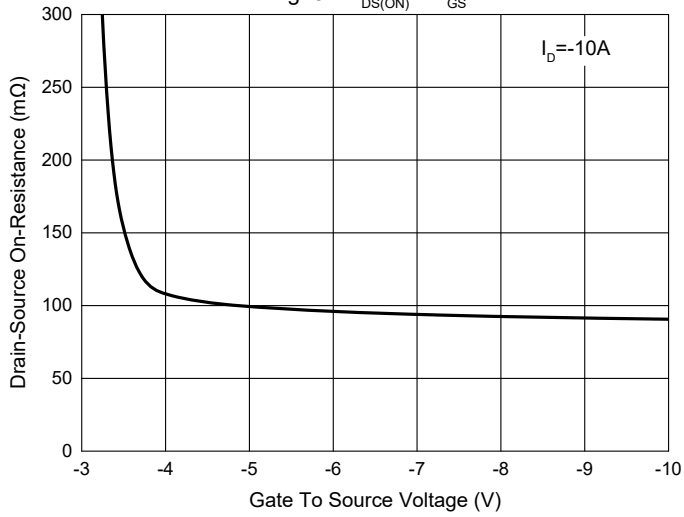


Fig. 4 - Normalized On Resistance Characteristics

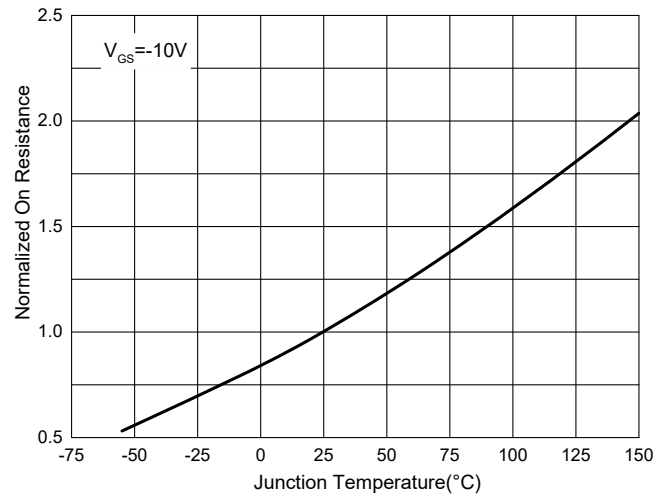


Fig. 5 - Capacitance Characteristics

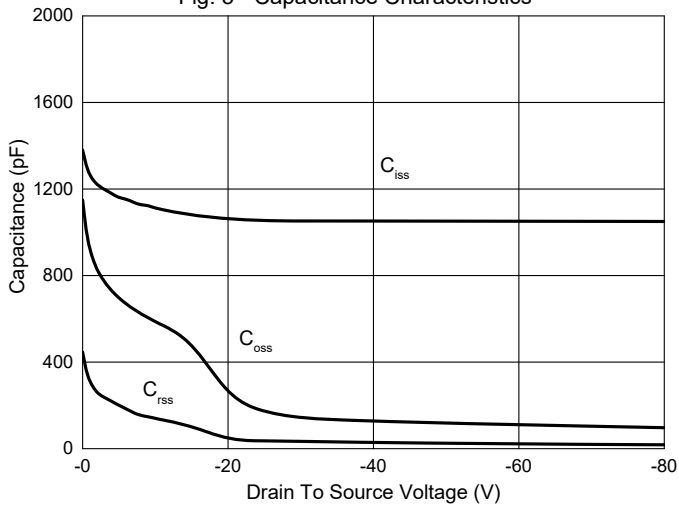
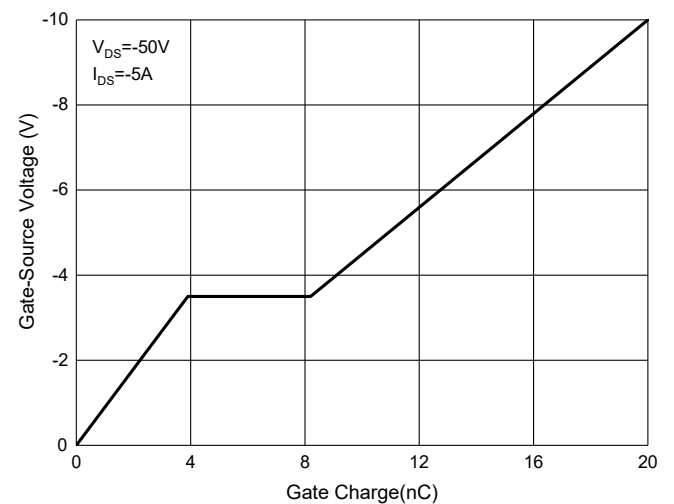
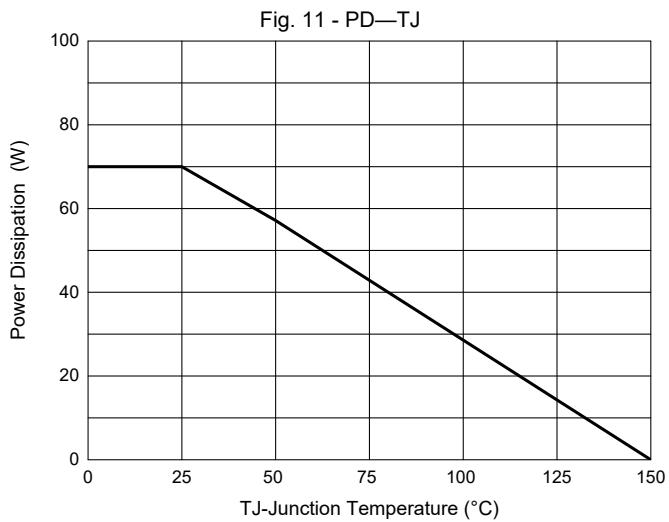
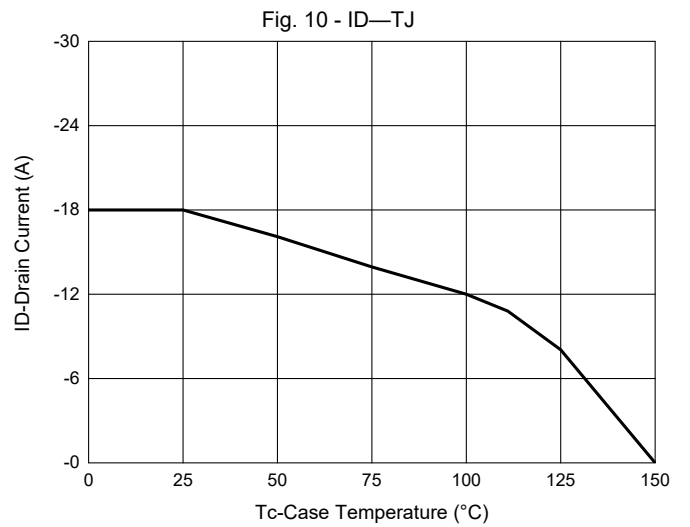
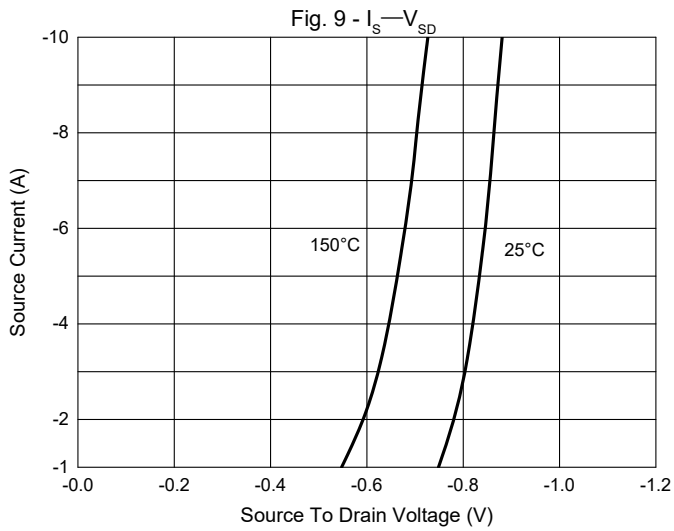
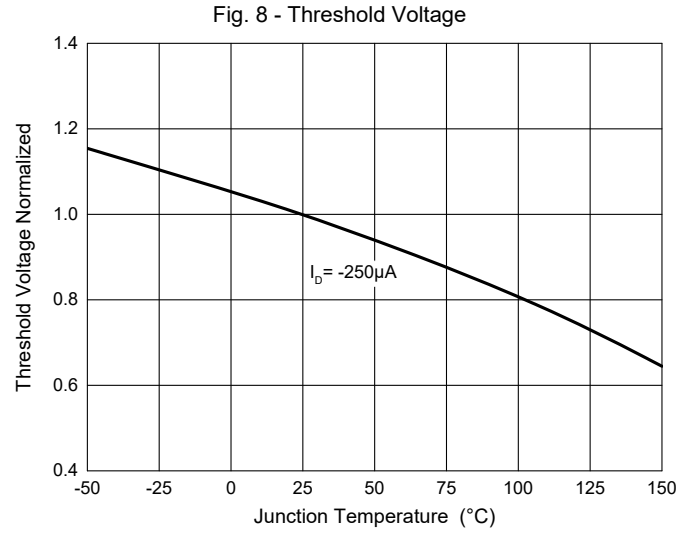
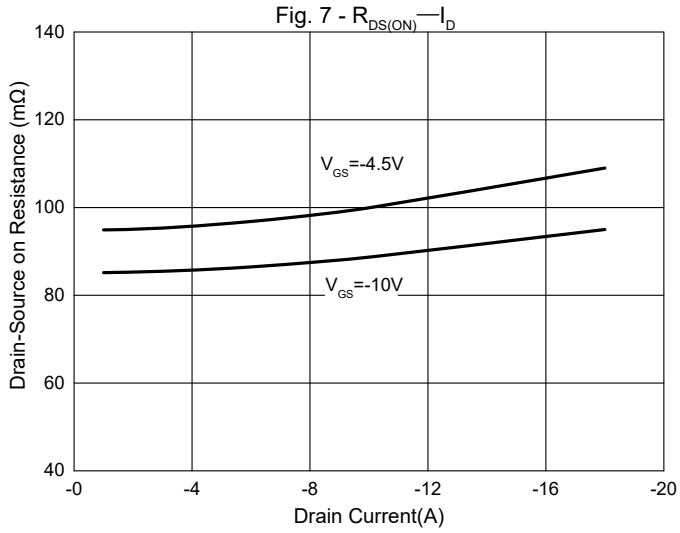


Fig. 6 - Gate Charge



Curve Characteristics



## Curve Characteristics

Fig. 12 - Safe Operation Area

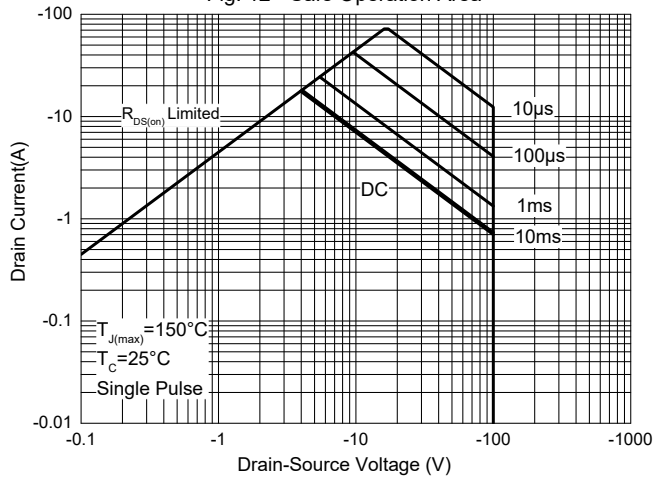
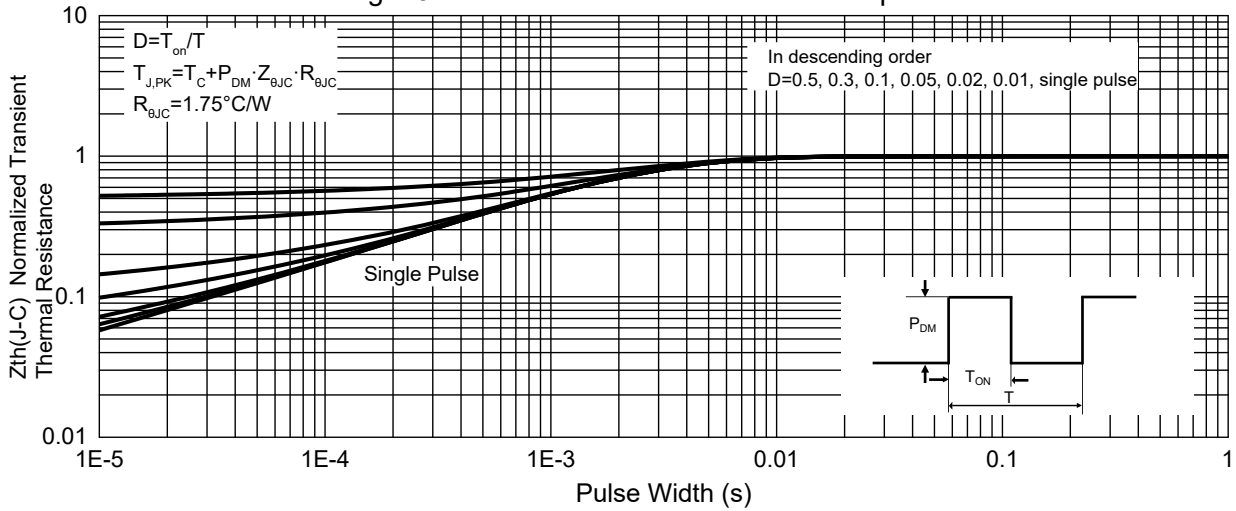


Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

## Revision History

Datasheet status	Version No	Release date	Update content
New product datasheet	Rev4-1	20230102	

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