

Features

- High Density Cell Design for Ultra Low $R_{DS(on)}$
- Fully Characterized Avalanche Voltage and Current
- Good Stability and Uniformity with High E_{AS}
- 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)

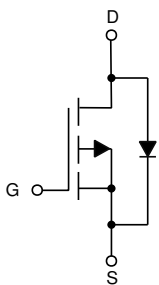
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.4°C/W Junction to Case^(Note 1)

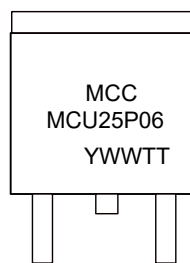
Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	-60	V	
Gate-Source Voltage	V_{GS}	±20	V	
Continuous Drain Current	I_D	$T_C=25^\circ C$	-25	A
		$T_C=100^\circ C$	-17.7	A
Pulsed Drain Current	I_{DM}	-60	A	
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	300	mJ	
Total Power Dissipation	P_D	90	W	

Note: 1.Surface Mounted on FR4 Board, $t \leq 10$ sec.
 2. $T_J=25^\circ C, V_{DD}=-20V, V_G=-10V, L=1mH, R_g=25\Omega, I_{AS}=33A$.

Internal Structure and Marking Code



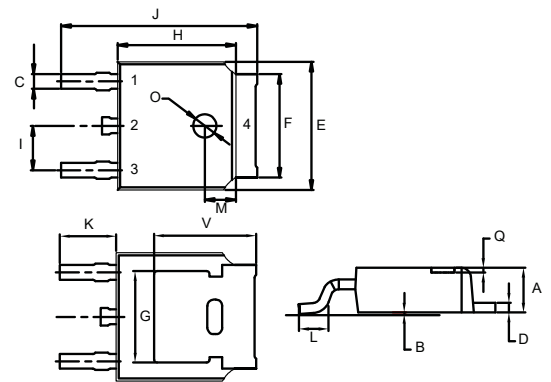
- 1.GATE
- 2.DRAIN
- 3.SOURCE
- 4.DRAIN



YWWTT: 5 codes in total
 Y is the year
 WW is the cycle
 TT is the line type

P-CHANNEL MOSFET

DPAK



DIM	INCHES		MM		NOTE
	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
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-2	-2.9	-3.5	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-20A$		39	45	m Ω
Forward Transconductance ^(Note 3)	g_{FS}	$V_{DS}=-10V, I_D=-10A$		25		S
Dynamic Characteristics^(Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		3430		pF
Output Capacitance	C_{oss}			391		
Reverse Transfer Capacitance	C_{rss}			272		
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$		46		nC
Gate-Source Charge	Q_{gs}			9.5		
Gate-Drain Charge	Q_{gd}			10.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=1.5\Omega, V_{GS}=-10V, R_G=3\Omega$		12		ns
Turn-On Rise Time	t_r			15		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	t_f			15		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	$T_C=25^\circ C$			-25	A
Body Diode Voltage	V_{SD}	$I_{SD}=-10A, V_{GS}=0V$			-1.2	V
Reverse Recovery Time	t_{rr}	$T_J=25^\circ C, I_F=-10A, di/dt=-100A/\mu s$		47		ns
Reverse Recovery Charge	Q_{rr}				53	
Forward Turn-On Time	t_{on}	Intrinsic Turn-On Time is Negligible (Turn-On is Dominated by LS+LD)				

Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

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

Curve Characteristics

Fig. 1 - Typical Output Characteristics

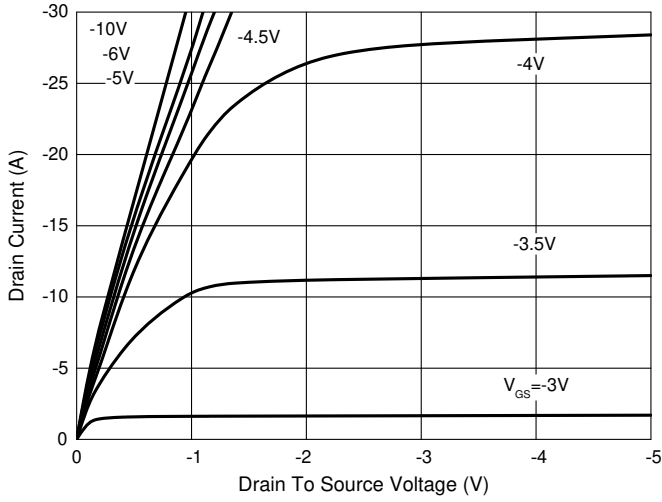


Fig. 2 - Transfer Characteristics

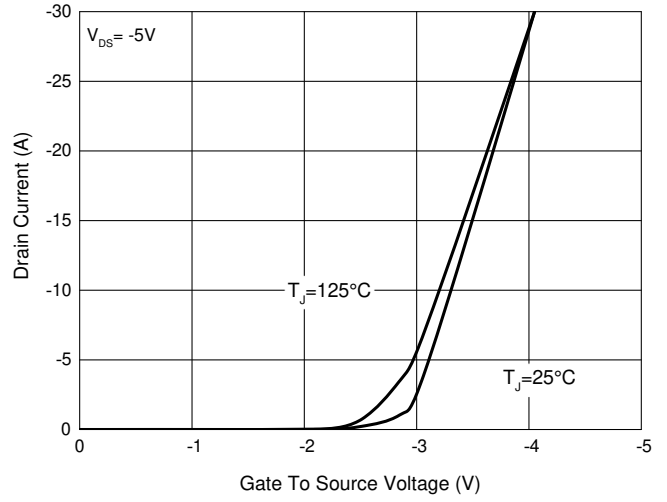


Fig. 3 - $R_{DS(ON)} - I_D$

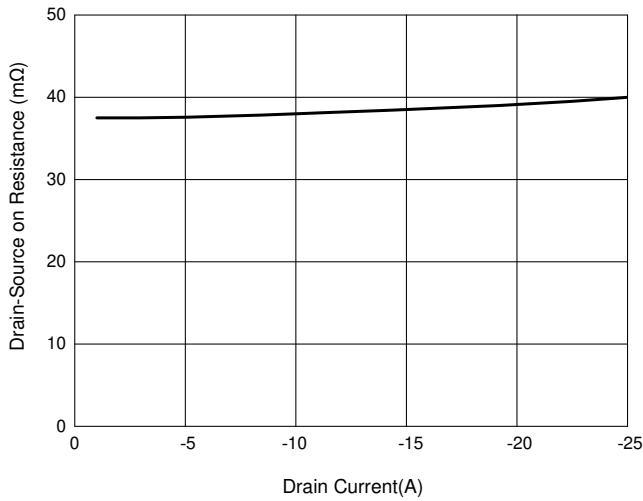


Fig. 4 - Normalized On Resistance Characteristics

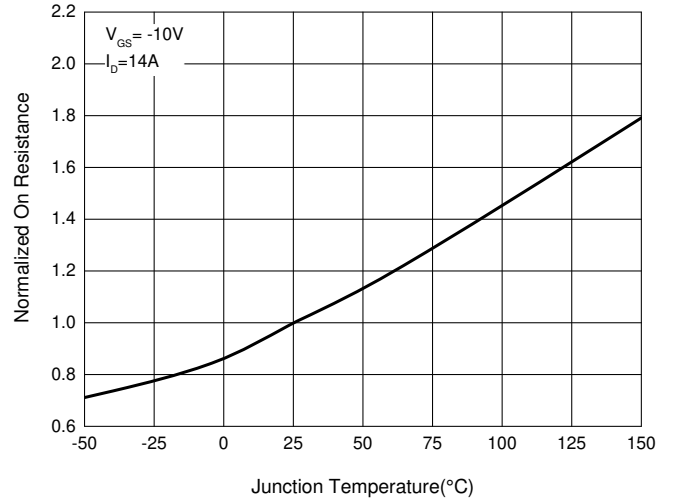


Fig. 5 - Capacitance Characteristics

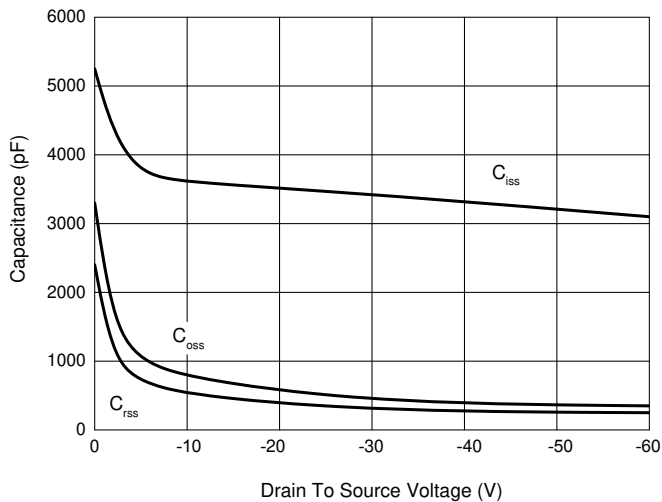
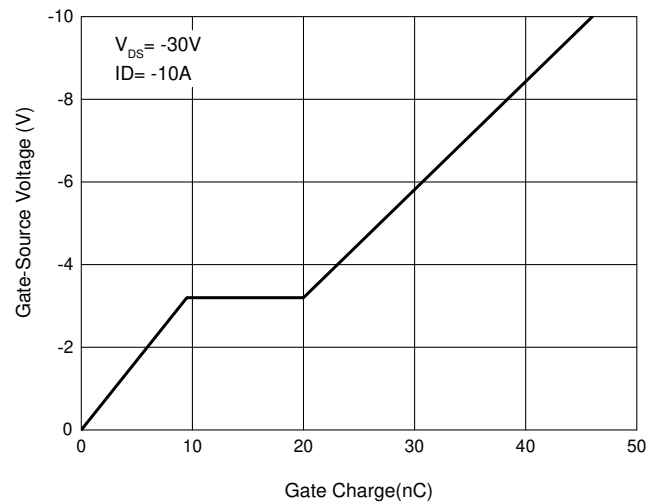


Fig. 6 - Gate Charge Characteristics



Ordering Information

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

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

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