Features

- Fast Switching
- Improved dv/dt Capability
- Moisture Sensitivity Level 1
- 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)

N-CHANNEL MOSFET

Maximum Ratings

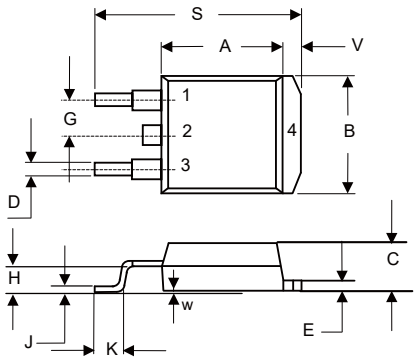
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 1.76°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	85	A
	T_C=100°C		59	
Pulsed Drain Current(Note 2)		I_{DM}	150	A
Total Power Dissipation(Note 3)		P_D	85	W
Single Pulse Avalanche Energy(Note 4)		E_{AS}	290	mJ

Note:

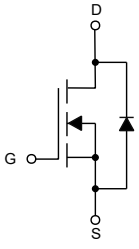
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_D is based on max. junction temperature, using junction-case thermal resistance.
4. T_J=25°C, V_{DD}=30V, V_{GS}=10V, R_G=2.5Ω, L=0.5mH.

D²-PAK

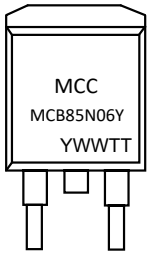


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.331	0.370	8.40	9.40	
B	0.378	0.417	9.60	10.60	
C	0.165	0.189	4.20	4.80	
D	0.027	0.037	0.68	0.94	
E	0.045	0.055	1.14	1.40	
G	0.10		2.54		TYP.
H	0.096	0.134	2.43	3.40	
J	0.011	0.025	0.28	0.64	
K	0.071	0.131	1.80	3.32	
S	0.575	0.625	14.60	15.87	
V	0.042	0.058	1.07	1.47	
W	0.000	0.010	0.00	0.25	

Internal Structure and Marking Code



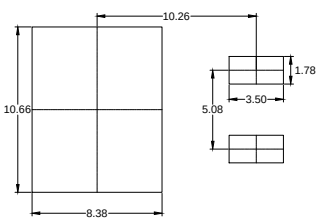
1.GATE
2.DRAIN
3.SOURCE
4.DRAIN



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

Suggested Solder Pad Layout

Unit:mm



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	60			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.6	2.4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A		11.3	13	mΩ
Forward Tranconductance	g_{FS}	V_{DS}=10V, I_D=5.5A	30			S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		2498		pF
Output Capacitance	C_{oss}			185		
Reverse Transfer Capacitance	C_{rss}			80		
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=30A		36		nC
Gate-Source Charge	Q_{gs}			9.6		
Gate-Drain Charge	Q_{gd}			6.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V,I_D=2A,R_L=1Ω V_{GS}=10V,R_{GEN}=3Ω		12		ns
Turn-On Rise Time	t_r			5.2		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	t_f			27		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S				85	A
Body Diode Voltage	V_{SD}	I_S=20A, V_{GS}=0V			1.4	V
Reverse Recovery Time	t_{rr}	T_J=25°C, I_F=30A, di/dt=100A/μs (Note 3)		280		ns
Reverse Recovery Charge	Q_{rr}			2.8		μC
Forward Turn-On Time	t_{on}	Intrinsic Turn-On Time is Negligible (Turn-On is Dominated by LS+LD)				

Curve Characteristics

Fig. 1 - Typical Output Characteristics

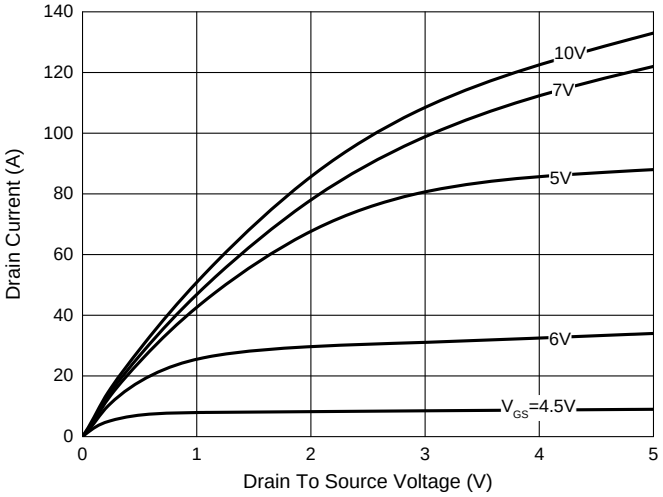


Fig. 2 - Transfer Characteristics

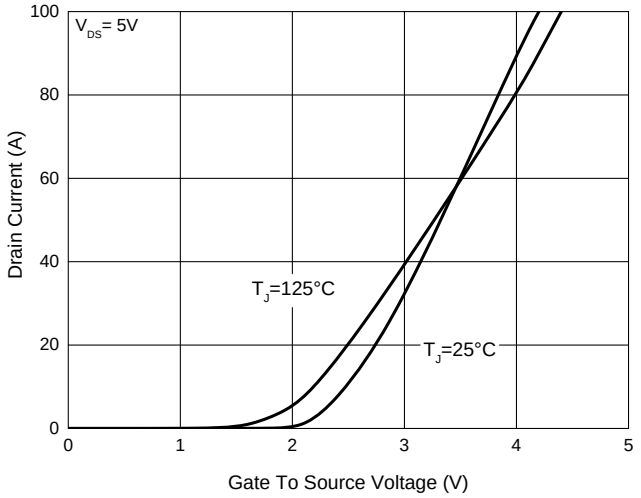


Fig. 3 - Capacitance Characteristics

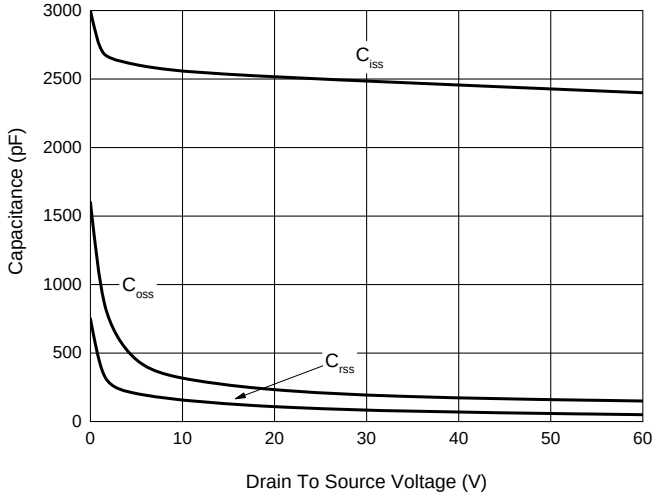


Fig. 4 - Gate Charge Characteristics

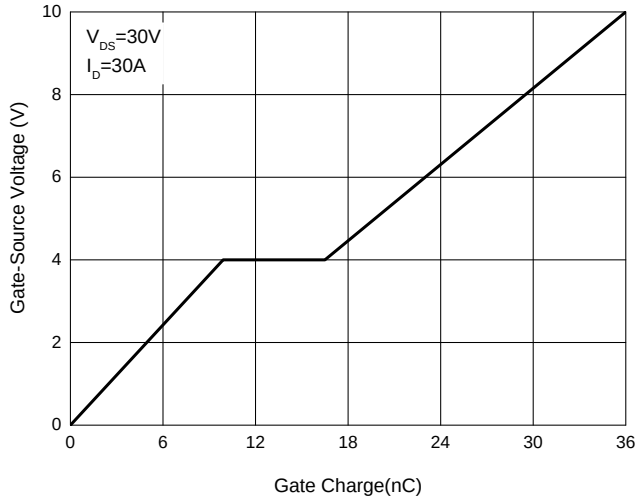


Fig. 5 - $R_{DS(ON)}$—I_D

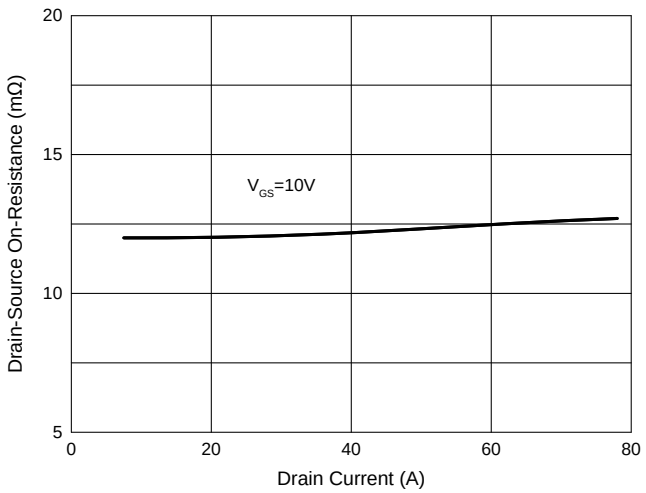
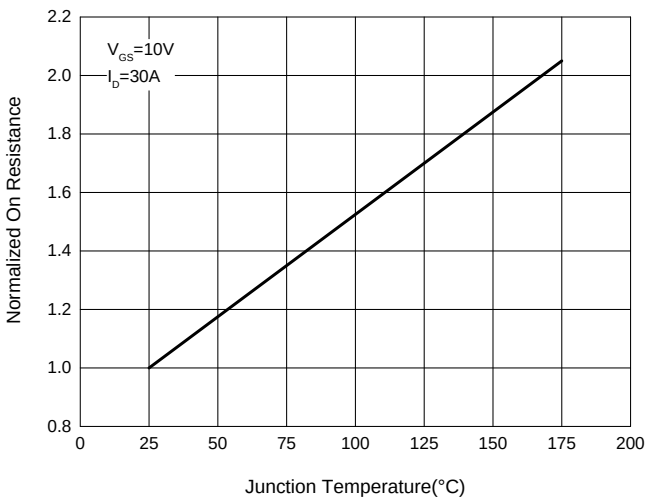


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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