Features

- AEC-Q101 Qualified
- Trench Power LV MOSFET technology
- Halogen Free. “Green” Device (Note 1)
- Excellent Package for Good Heat Dissipation
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- 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 +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 2.1°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	50	A
	T_C=100°C		32	
Pulsed Drain Current(Note 3)		I_{DM}	120	A
Total Power Dissipation(Note 4)		P_D	59.5	W
Single Pulse Avalanche Energy(Note 5)		E_{AS}	72	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.

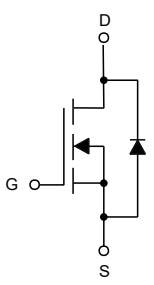
2. The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

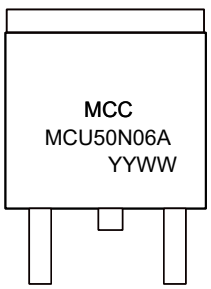
3. Repetitive rating; pulse width limited by max. junction temperature.

4. P_D is based on max. junction temperature, using junction-case thermal resistance.

5. T_J=25°C, V_{DD}= 50V, V_{GS}= 10V, L= 0.5mH.

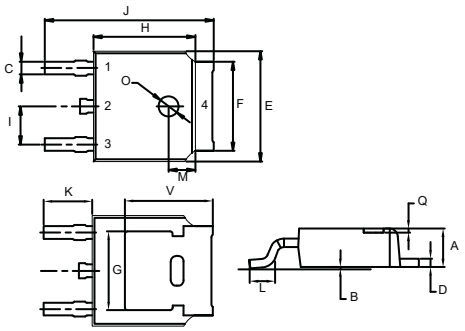
Internal Structure and Marking Code





4 codes in total
YY is the year
WW is the week

DPAK(TO-252)



1. Gate
2,4. Drain
3. Source

DIMENSIONS					
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=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	1.0	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=15A		11	15	mΩ
		V_{GS}=4.5V, I_D=10A		12.5	18	
Gate Resistance	R_g	F=1 MHz, Open drain		1.2		Ω
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S			50		A
Diode Forward Voltage	V_{SD}	I_S=15A, V_{GS}=0V		0.85	1.2	V
Reverse Recovery Time	t_{rr}	I_{DS}=20A, d_i/d_t=100A/μs			32	nS
Reverse Recovery Charge	Q_{rr}				28.2	nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		2515		pF
Output Capacitance	C_{oss}			165		
Reverse Transfer Capacitance	C_{rss}			130		
Total Gate Charge	Q_g	V_{DD}=30V,V_{GS}=10V,I_D=20A		46		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			11		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V,V_G=10V, I_{DS}=20A		9		ns
Turn-On Rise Time	t_r			41		
Turn-Off Delay Time	$t_{d(off)}$			28		
Turn-Off Fall Time	t_f			2.8		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

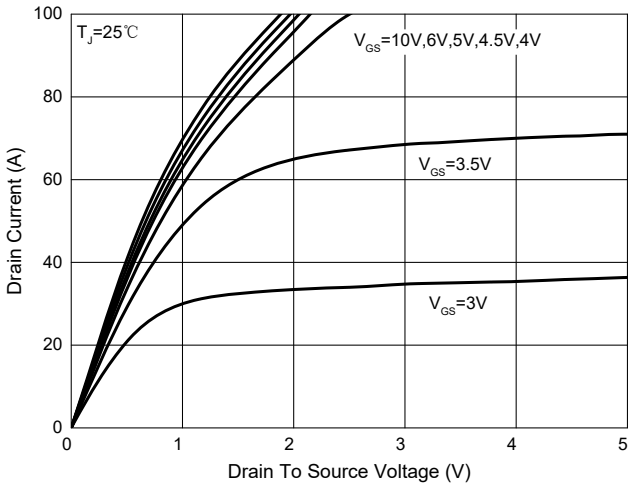


Fig. 2 - Transfer Characteristics

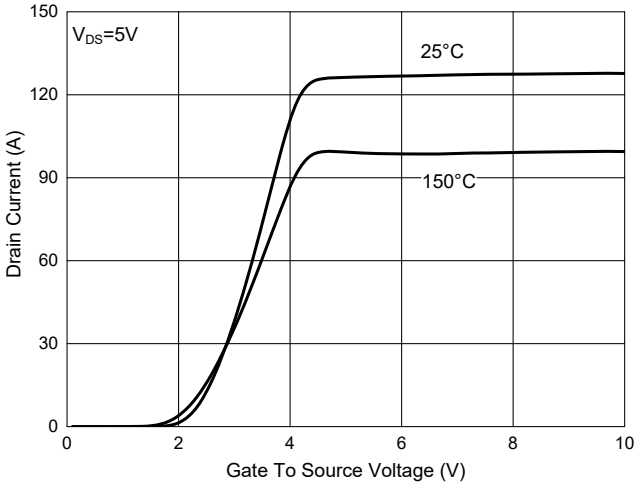


Fig. 3 - $R_{DS(ON)}$—I_D

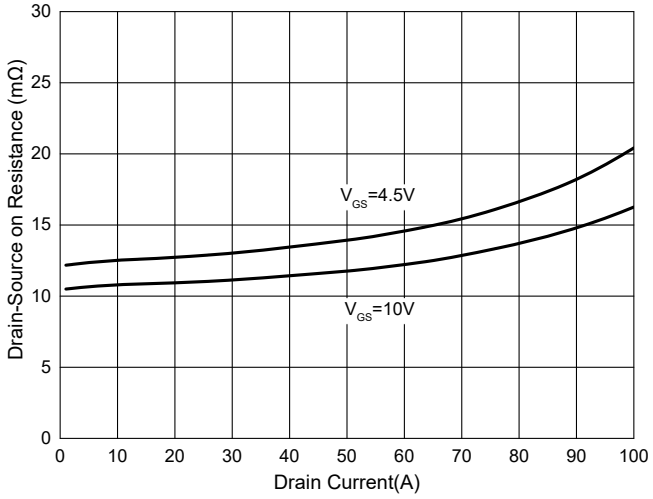


Fig. 4 - Normalized On Resistance Characteristics

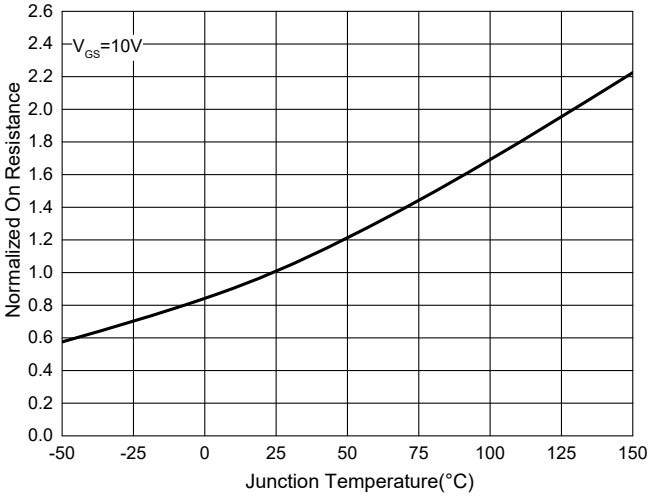


Fig. 5 - Capacitance Characteristics

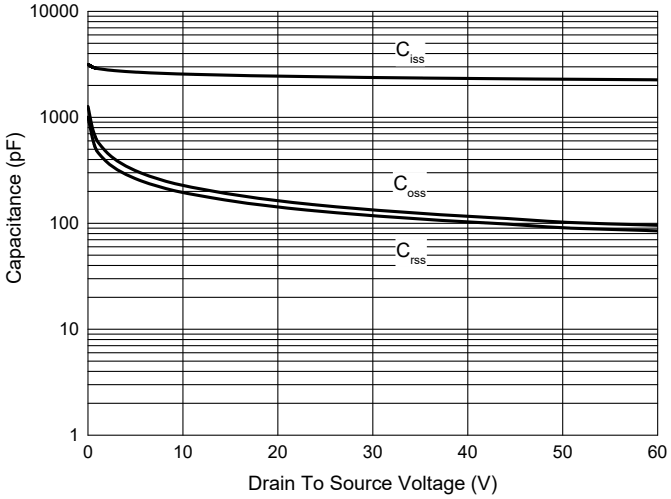
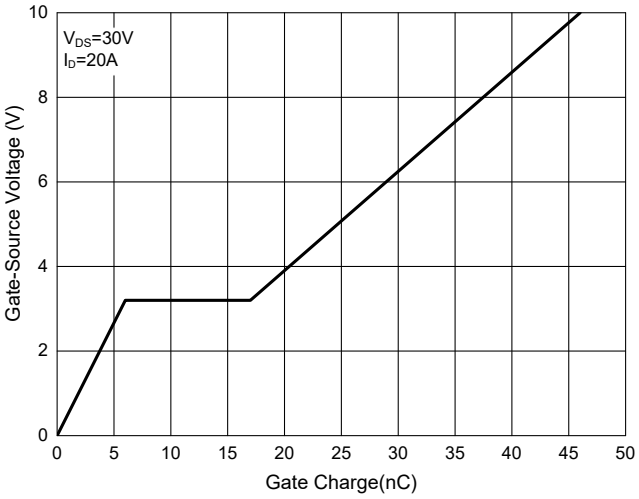


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - $R_{DS(ON)}$—V_{GS}

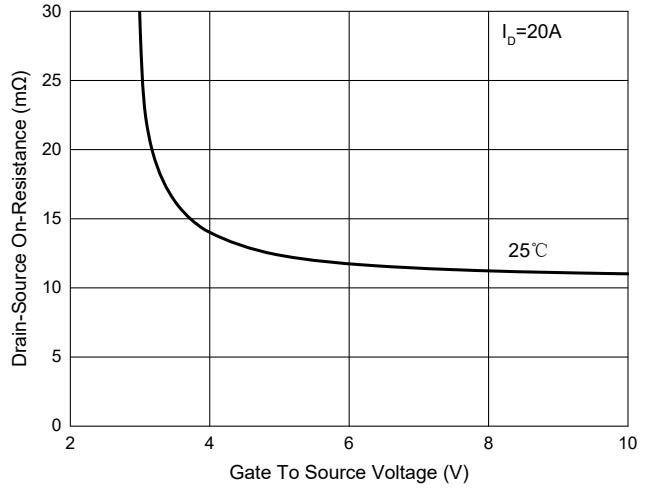


Fig. 8 - Nomalized Threshold voltage

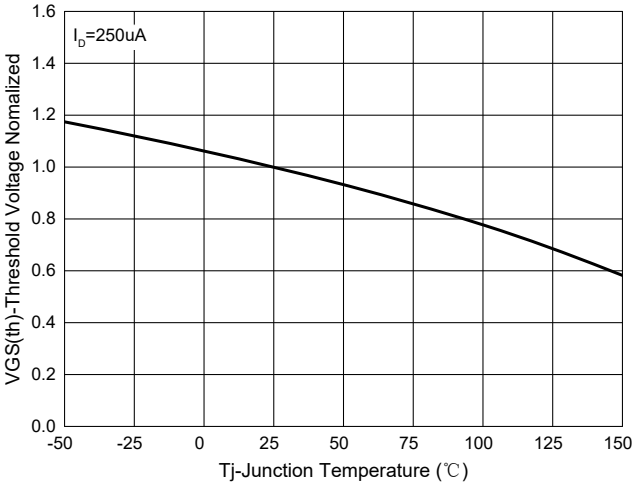


Fig. 9 - I_S—V_{SD}

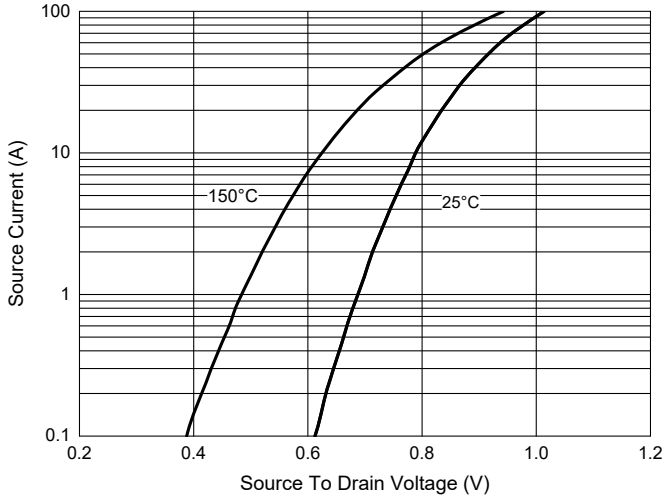


Fig. 10 - Current dissipation

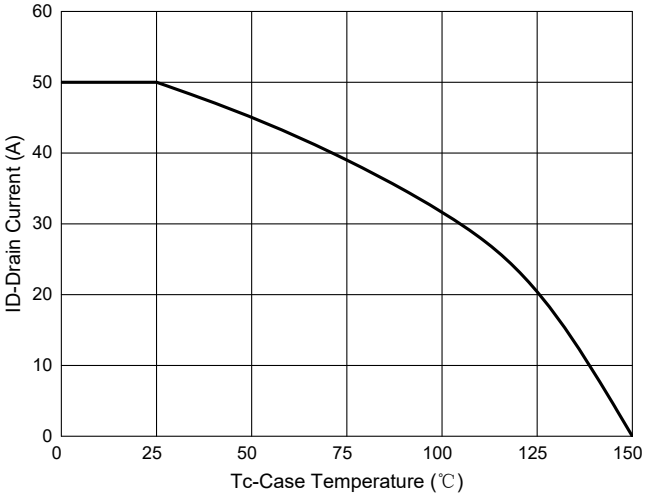
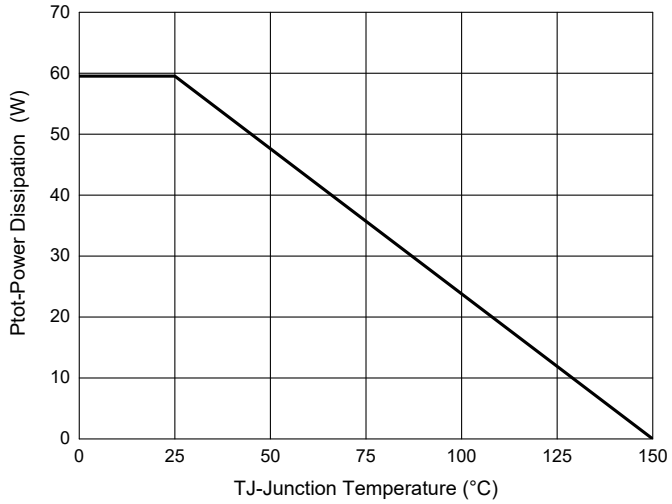


Fig. 11 - PD—TJ



Curve Characteristics

Fig. 12 - Safe Operation Area

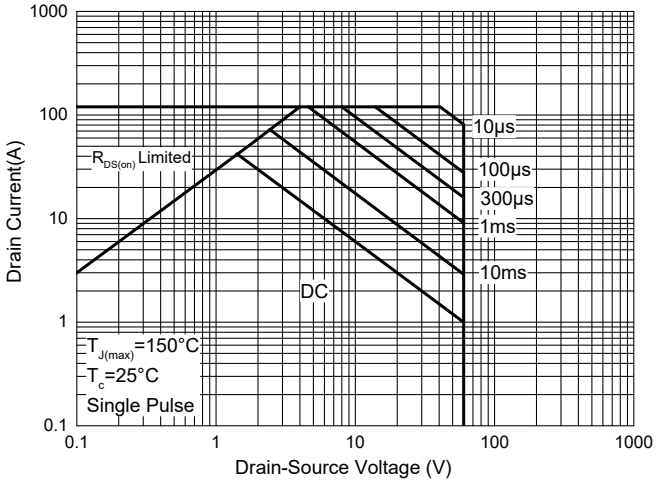
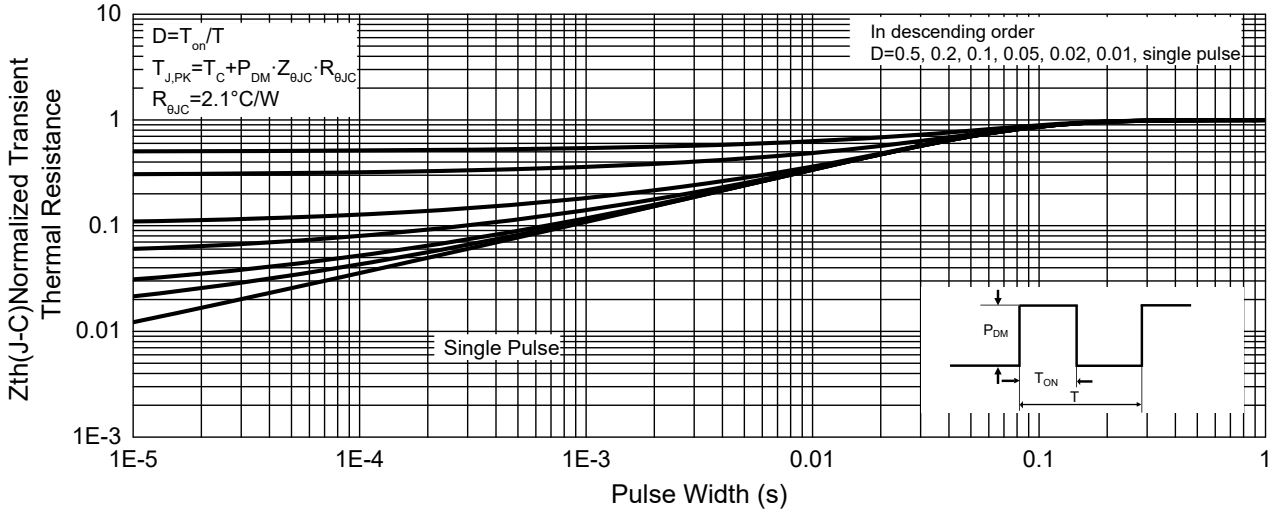


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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