

Features

- AEC-Q101 Qualified
- Fast Switching
- Improved dv/dt Capability
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

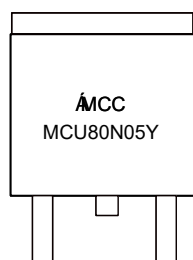
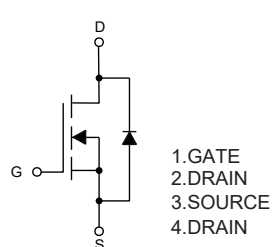
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range : -55°C to +150°C
- Thermal Resistance : 1.76°C/W Junction to Case

Parameter		Symbol	Value
Drain-source Voltage		V_{DS}	48V
Gate-source Voltage		V_{GS}	±20V
Drain Current	$T_C=25^\circ\text{C}$	I_D	80A
	$T_C=100^\circ\text{C}$		56A
Pulsed Drain Current		I_{DM}	240A
Power Dissipation		P_D	71W
Single Pulsed Avalanche Energy ⁽¹⁾		E_{AS}	225mJ

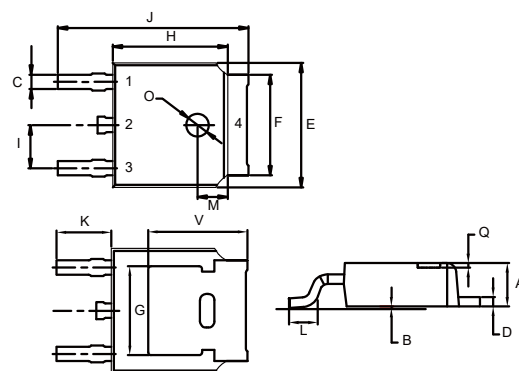
Note: 1. E_{AS} Condition: $T_J=25^\circ\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$

Internal Structure and Marking Code



N-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 (Ta=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	48	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.7	2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A		5.5	7.5	mΩ
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =10A		6.9	9.5	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =30A	30	-	-	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, F=1.0MHz	-	1990	-	PF
Output Capacitance	C _{oss}		-	470	-	PF
Reverse Transfer Capacitance	C _{rss}		-	14	-	PF
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =2A, R _L =1Ω V _{GS} =10V, R _{GEN} =3Ω	-	16	-	nS
Turn-on Rise Time	t _r		-	8	-	nS
Turn-Off Delay Time	t _{d(off)}		-	45	-	nS
Turn-Off Fall Time	t _f		-	33	-	nS
Total Gate Charge	Q _g	V _{DS} =30V, I _D =20A, V _{GS} =10V	-	31	-	nC
Gate-Source Charge	Q _{gs}		-	6	-	nC
Gate-Drain Charge	Q _{gd}		-	5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A	-	-	1.2	V
Diode Forward Current	I _S		-	-	80	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =30A di/dt = 100A/μs	-	35		nS
Reverse Recovery Charge	Q _{rr}		-	47		nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Curve Characteristics

Fig. 1-Output Characteristics

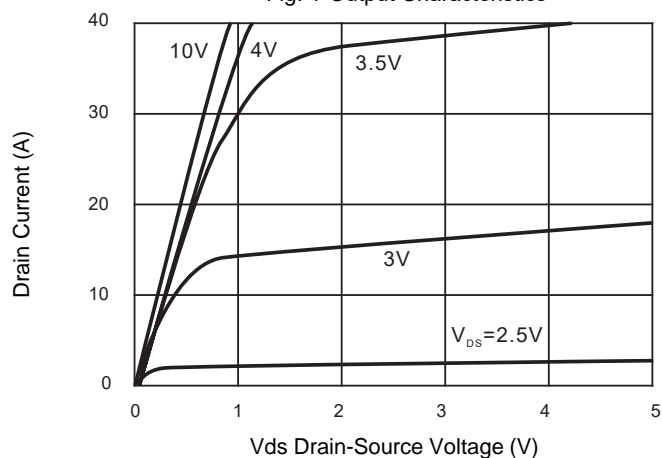


Fig. 2-Rdson-JunctionTemperature

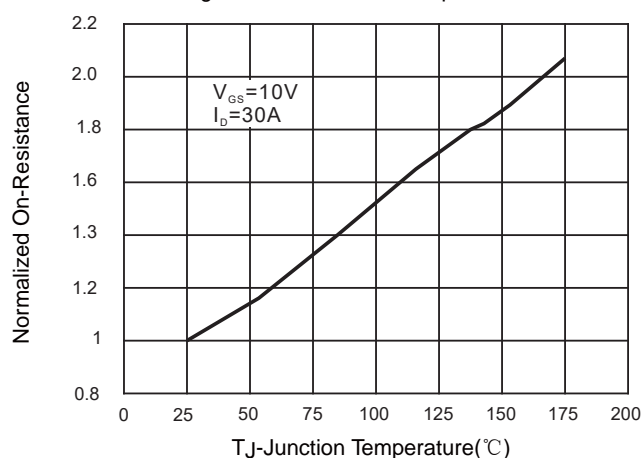


Fig. 3-Transfer Characteristics

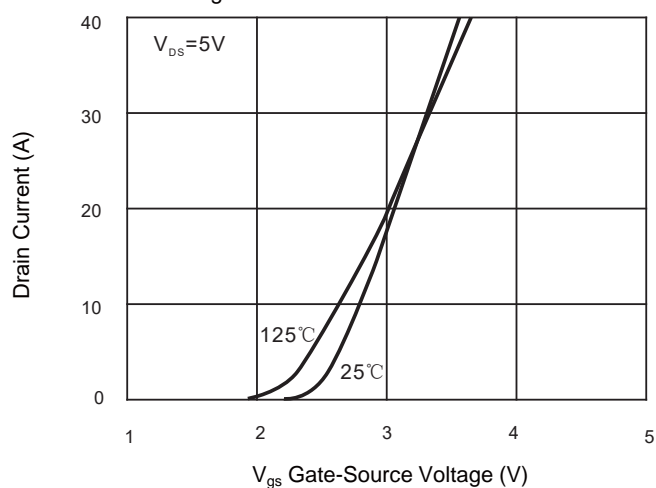


Fig. 4 - Total Gate Charge Characteristics

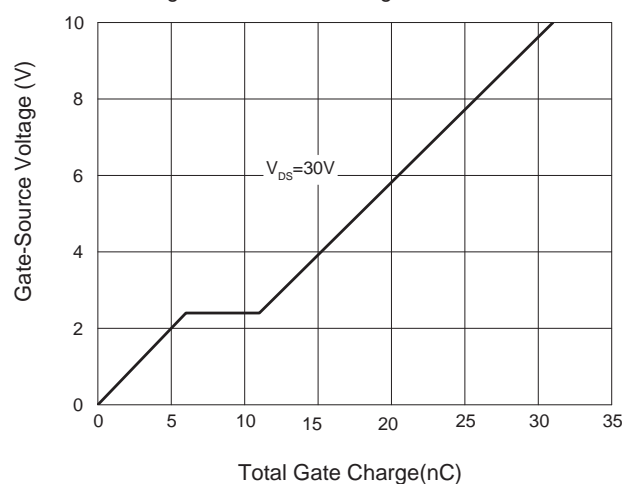


Fig. 5-Rdson- Drain Current

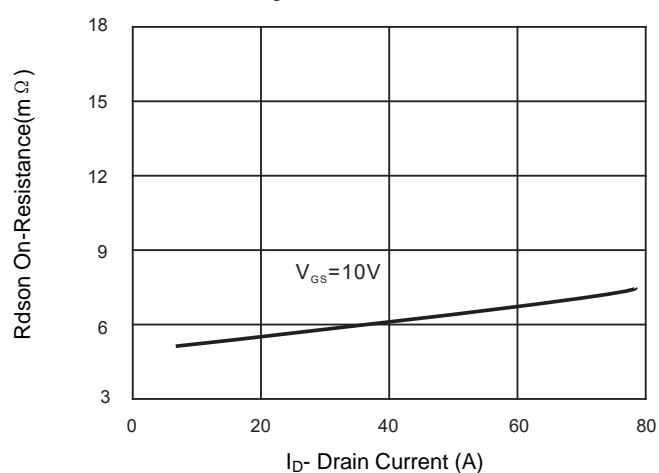
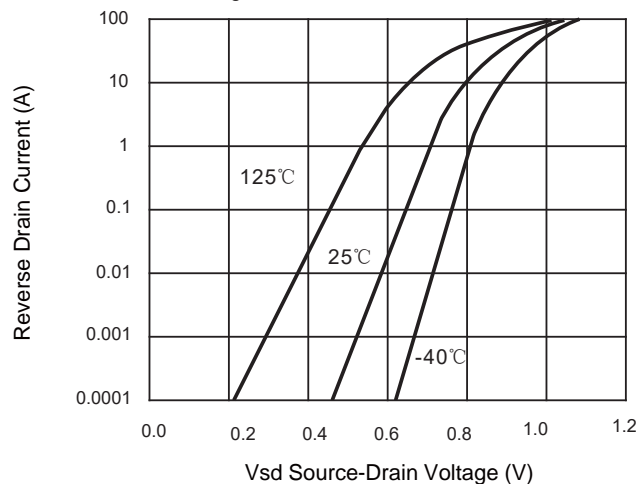
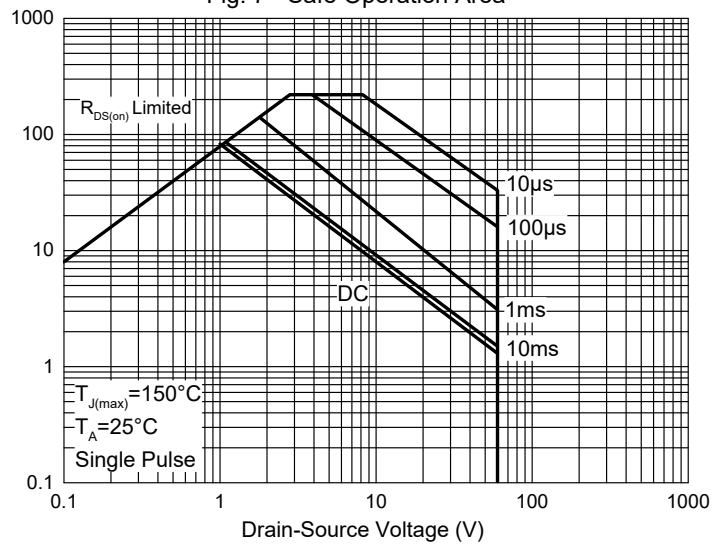


Fig. 6-Source- Drain Diode Forward



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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