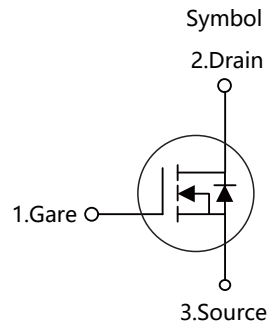


■ PRODUCT CHARACTERISTICS

$V_{DSS}$	650V
$R_{DS(on)}$ Typ@ $V_{GS}=10V$	0.8 $\Omega$
$I_D$	10A



■ APPLICATIONS

- High frequency switching mode power supply
- Electronic ballast
- LED power supply

■ FEATURES

- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT10N65EYHF	TO-220F	50pieces/Ture
N/A	MOT10N65EYA	TO-220	50pieces/Ture

■ ABSOLUTE MAXIMUM RATINGS( $T_c=25^{\circ}C$ , unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-source voltage	$V_{DSS}$	650	V
Gate-source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	Continuous	$I_D$	10
	Pulsed(Note 2)	$I_{DM}$	40
Avalanche energy	Single pulsed(Note 3)	$E_{AS}$	720
Peak diode recovery dv/dt(Note 4)	dv/dt	4.5	V/ns
Power dissipation	TO-220	$P_D$	156
	TO-220F		50
Junction temperature	$T_J$	+150	$^{\circ}C$
Storage temperature	$T_{STG}$	-55~+150	$^{\circ}C$

Notes 1 Absolute maximum ratings are those baluse beyond which the device could be permanently damaged

Absolute maximum ratings are stress ratings only and functional device operation is not implied

2 Repetitive rating pulse width limited by maximum junction temperature

3  $L=14.2mH, I_{AS}=10A, V_{DD}=50V, R_G=25\Omega$  starting  $T_J=25^{\circ}C$

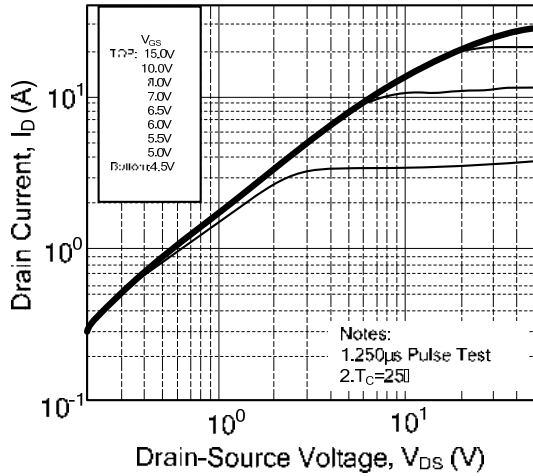
4  $I_{SD}\leq 9.5A, di/dt\leq 200A/us, V_{DD}\leq BV_{DSS}$ , starting  $T_J=25^{\circ}C$

## ■ ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

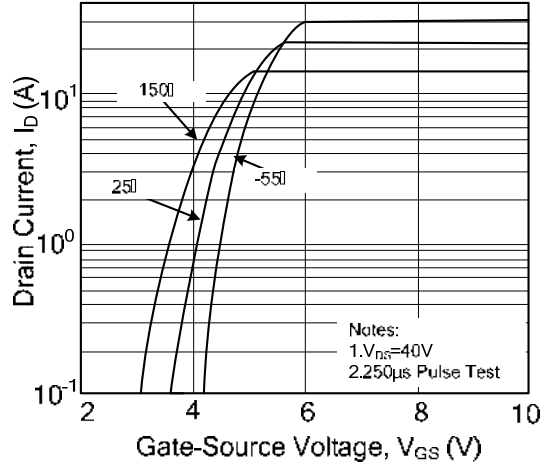
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS}=0V, I_{DS}=250\mu A$	650	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2	-	4	V
Drain-source leakage current	$I_{DSS}$	$V_{DS}=650V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-source leakage current	$I_{GSS}$	$V_{GS}=\pm 30V, V_{DS}=0V$	-	-	$\pm 100$	nA
On-state resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=5A$	-	0.8	0.86	$\Omega$
Dynamic characteristics						
Input capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=25V$ $f=1MHz$	-	1570	-	pF
Output capacitance	$C_{oss}$		-	166	-	
Reverse transfer capacitance	$C_{rss}$		-	18	-	
Switching characteristics						
Total gate charge	$Q_g$	$V_{DS}=520V, V_{GS}=10V,$ $I_D=10A$	-	44	-	nC
Gate-source charge	$Q_{gs}$		-	6.7	-	
Gate-drain charge	$Q_{gd}$		-	18	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=325V, I_D=10A$ $R_G=25\Omega$	-	23	-	nS
Turn-on rise time	$t_r$		-	69	-	
Turn-off delay time	$t_{d(off)}$		-	144	-	
Turn-off fall time	$t_f$		-	77	-	
Source-drain diode ratings and characteristics						
Maximum continuous drain-source diode forward current	$I_S$		-	-	10	A
Maximum pulsed drain-source diode forward current	$I_{SM}$		-	-	40	A
Drain-source diode forward voltage	$V_{SD}$	$I_S=10A, V_{GS}=0V,$	-	-	1.4	V
Reverse recovery time	$t_{rr}$	$I_S=10A, V_{GS}=0V,$ $dI_F/dt=100A/\mu s,$	-	420	-	nS
Reverse recovery charge	$Q_{rr}$		-	4.2	-	$\mu C$

■ TYPICAL CHARACTERISTICS

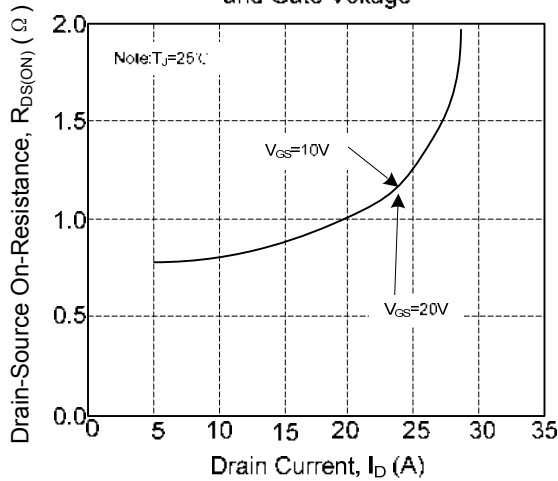
On-Region Characteristics



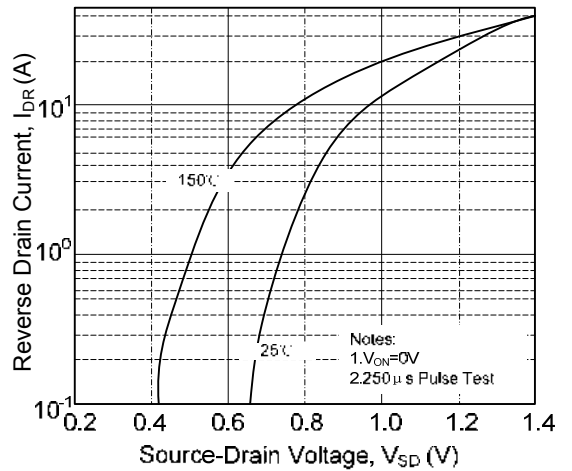
Transfer Characteristics



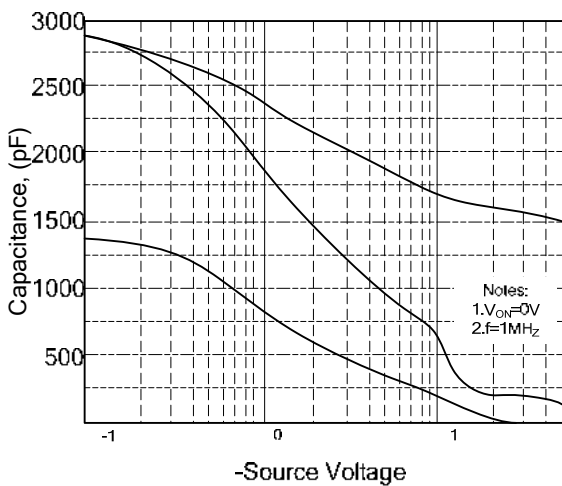
On-Resistance Variation vs. Drain Current and Gate Voltage



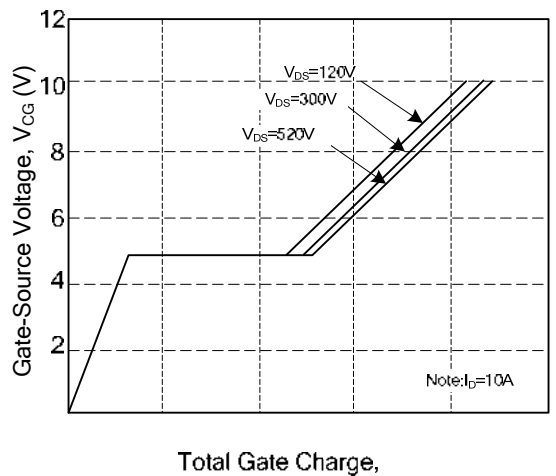
Body Diode Forward Voltage Variation with Source Current and Temperature



Capacitance Characteristics

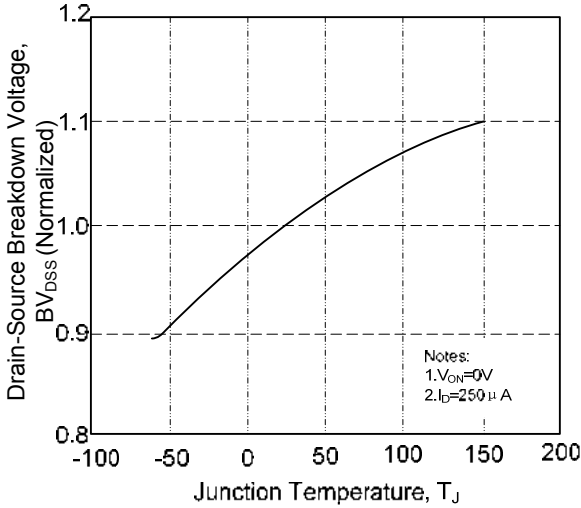


Gate Charge Characteristics

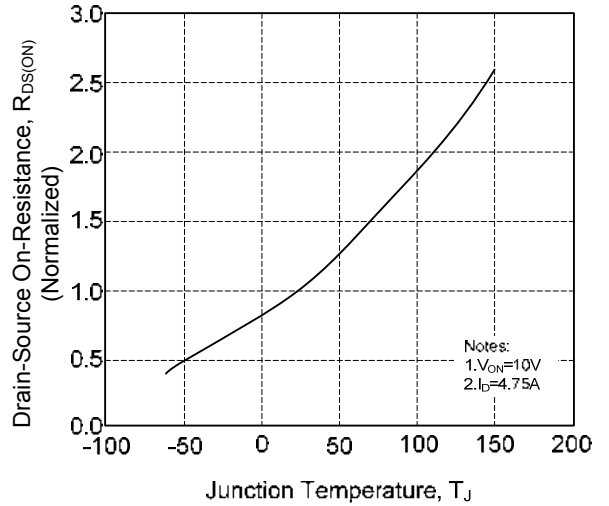


■ TYPICAL CHARACTERISTICS(Cont.)

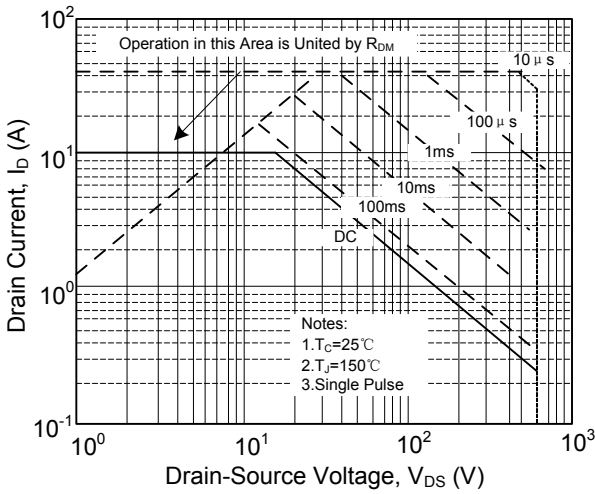
Breakdown Voltage Variation vs. Temperature



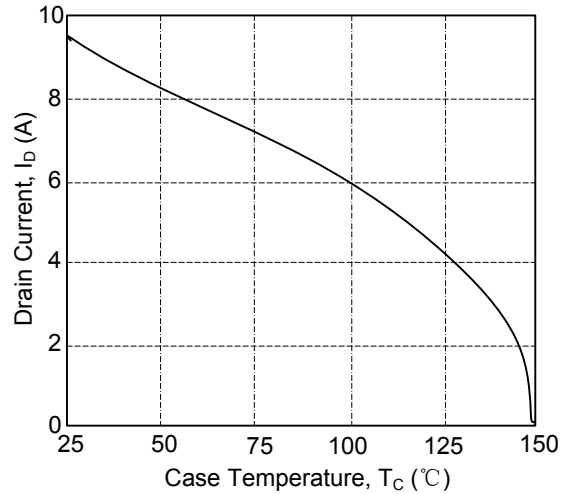
On-Resistance Variation vs. Temperature



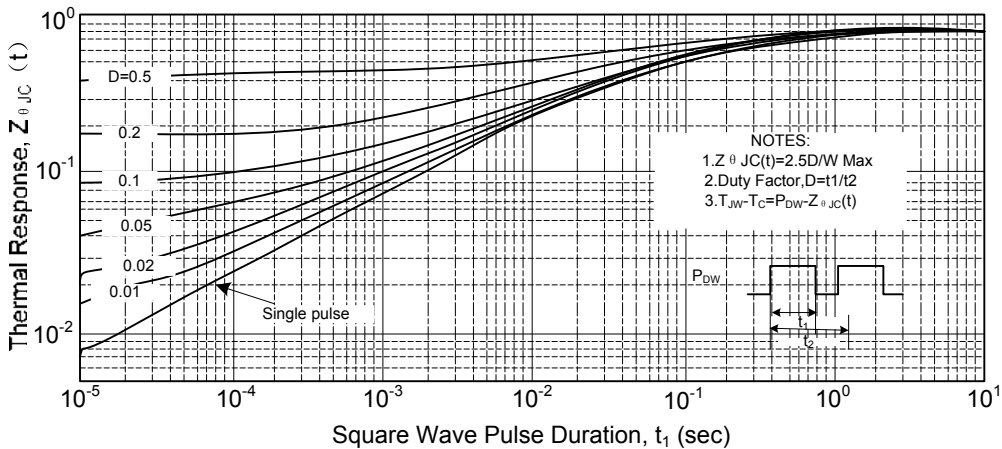
Maximum Safe Operating Area



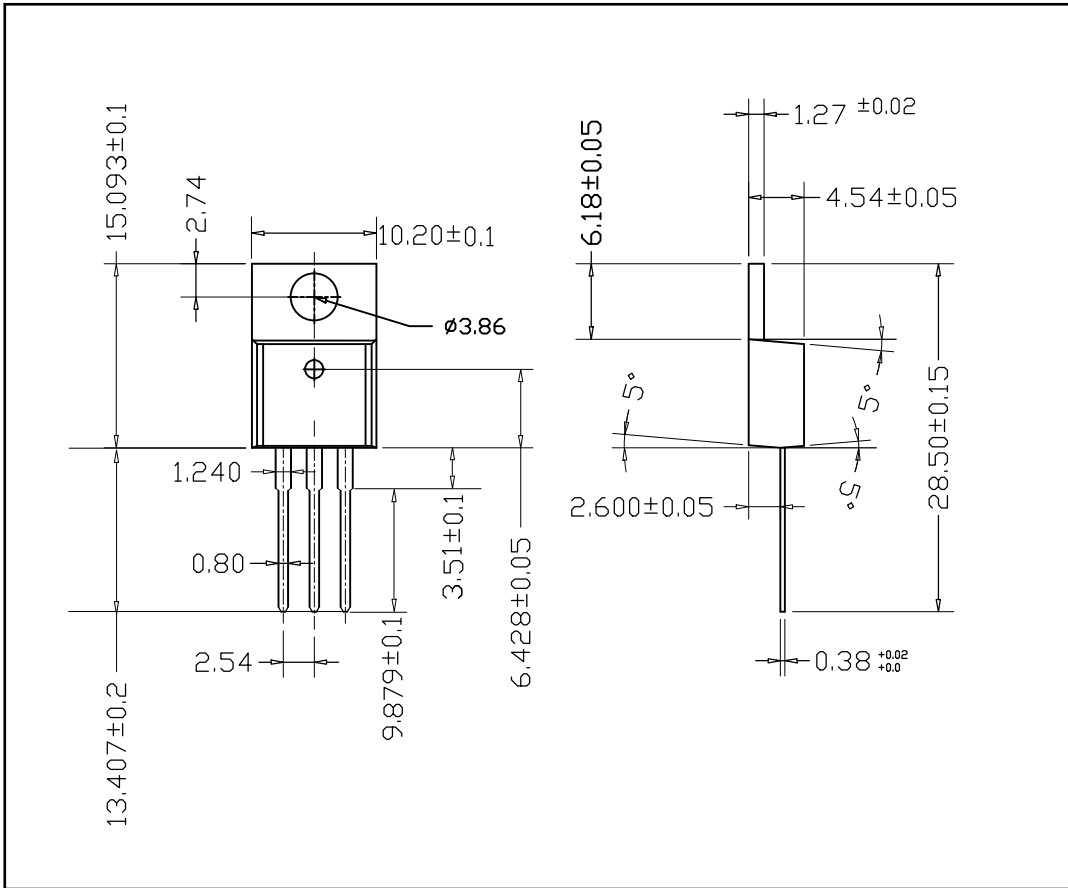
Maximum Drain Current vs. Case Temperature



Transient Thermal Response Curve



■ TO-220AB PACKAGE OUTLINE DIMENSIONS



■ TO-220F PACKAGE OUTLINE DIMENSIONS

