

PRODUCT CHARACTERISTICS

VDSS	60V
$R_{DS(on)}$ Typ(@ $V_{GS}=10V$)	6m Ω
ID	80A

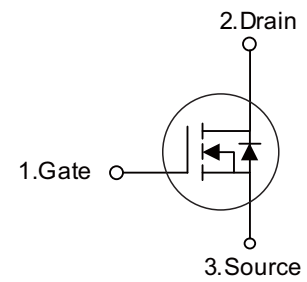
FEATURES

- * Extremely low on-resistance $R_{DS(ON)}$
- * Excellent $Q_g \times R_{DS(ON)}$ product

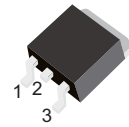
APPLICATIONS

- * Motor control and drive
- * Battery management
- * ups

Symbol



TO-220



TO-263

ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT80N06A	TO-220	50 pieces/Tube
N/A	MOT80N06E	TO-263	800 pieces /Reel

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	80	A
Drain Current-Continuous($T_C=100^\circ\text{C}$)	$I_D(100^\circ\text{C})$	56.5	A
Pulsed Drain Current	I_{DM}	320	A
Maximum Power Dissipation	P_D	110	W
Derating factor		0.73	W/ $^\circ\text{C}$
Single pulse avalanche energy	E_{AS}	390	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	2.5	4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=20A$	-	6	7	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=20A$	20	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V,$ $F=1.0MHz$	-	4000	-	PF
Output Capacitance	C_{oss}		-	290	-	PF
Reverse Transfer Capacitance	C_{rss}		-	210	-	PF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_L=1\Omega$ $V_{GS}=10V, R_G=3\Omega$	-	8.5	-	nS
Turn-on Rise Time	t_r		-	7	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	40	-	nS
Turn-Off Fall Time	t_f		-	15	-	nS
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=20A,$ $V_{GS}=10V$	-	90.3		nC
Gate-Source Charge	Q_{gs}		-	10.9		nC
Gate-Drain Charge	Q_{gd}		-	20.6		nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$	-		1.2	V
Diode Forward Current	I_S		-	-	80	A
Reverse Recovery Time	t_{rr}	$T_J = 25^{\circ}C, IF = 20A$ $di/dt = 100A/\mu s^{(Note3)}$	-	32	-	nS
Reverse Recovery Charge	Q_{rr}		-	45	-	nC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

■ TYPICAL PERFORMANCE CHARACTERISTICS(Cont.)

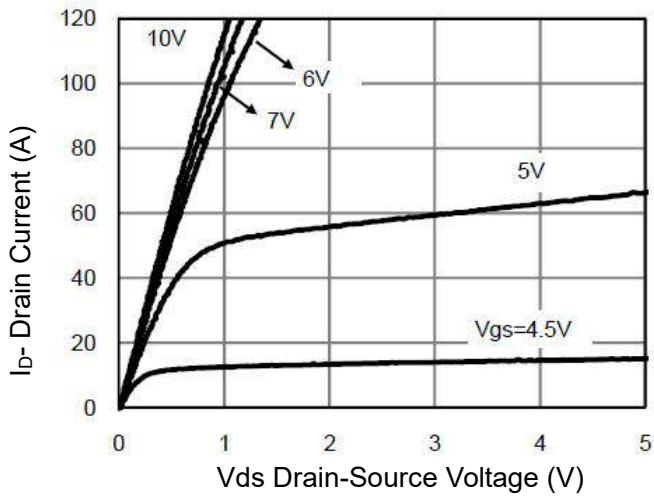


Figure 1 Output Characteristics

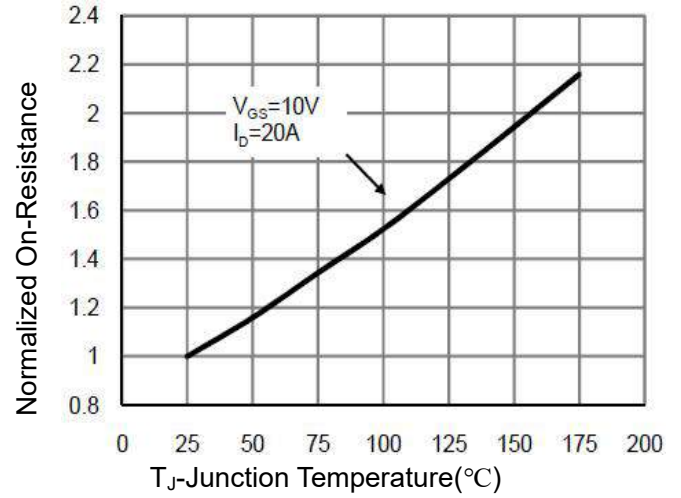


Figure 2 $R_{DS(on)}$ -Junction Temperature

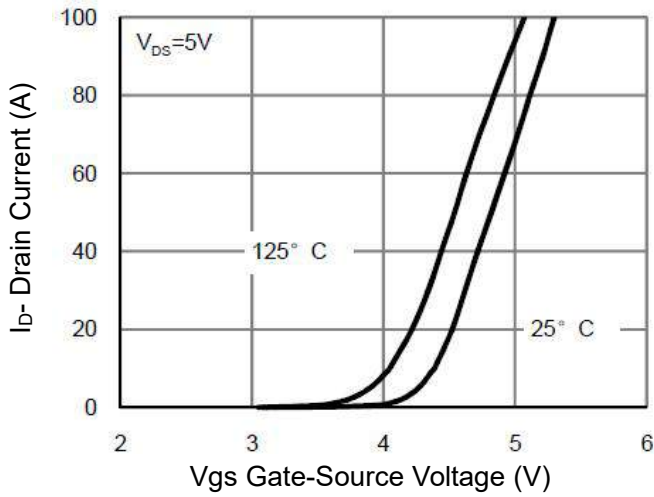


Figure 3 Transfer Characteristics

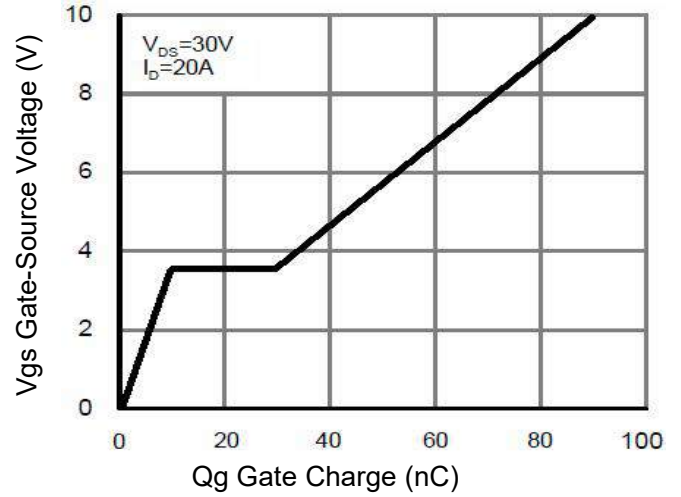


Figure 4 Gate Charge

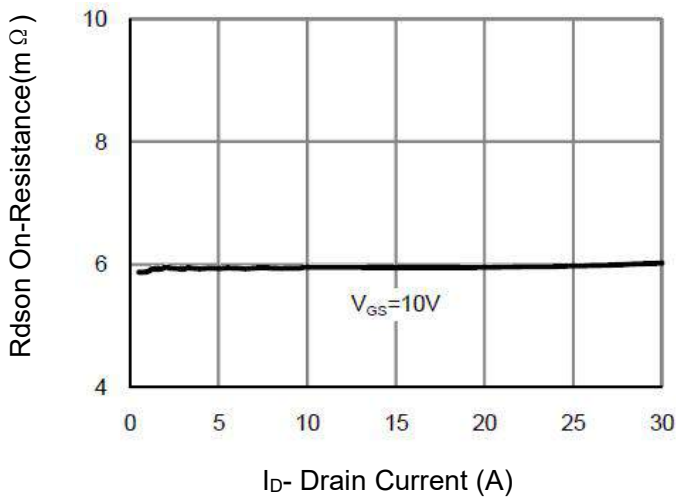


Figure 5 $R_{DS(on)}$ - Drain Current

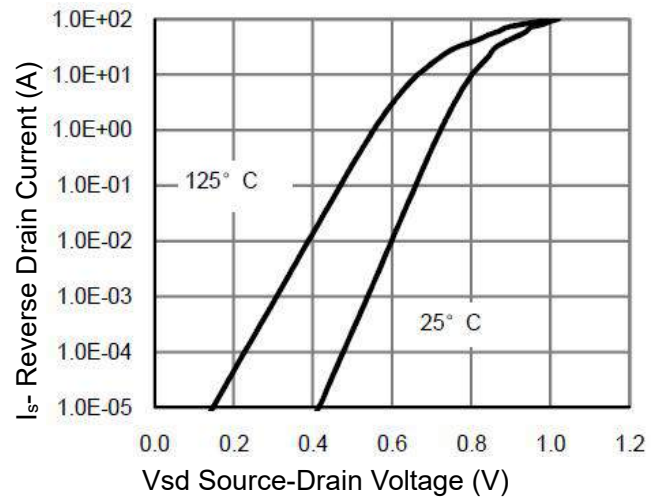


Figure 6 Source- Drain Diode Forward

■ TYPICAL PERFORMANCE CHARACTERISTICS

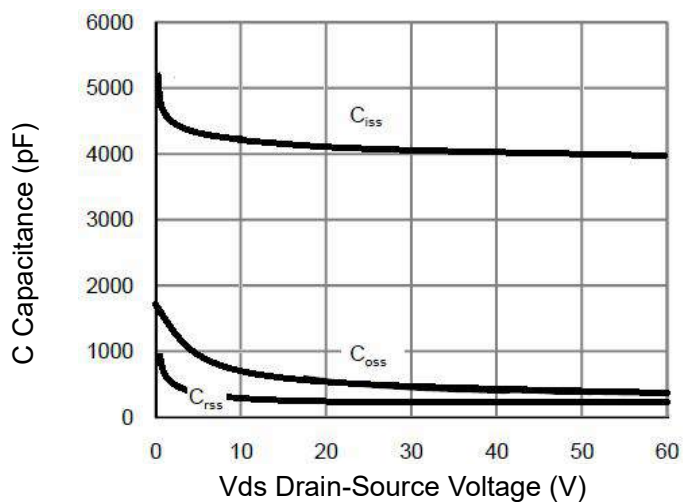


Figure 7 Capacitance vs Vds

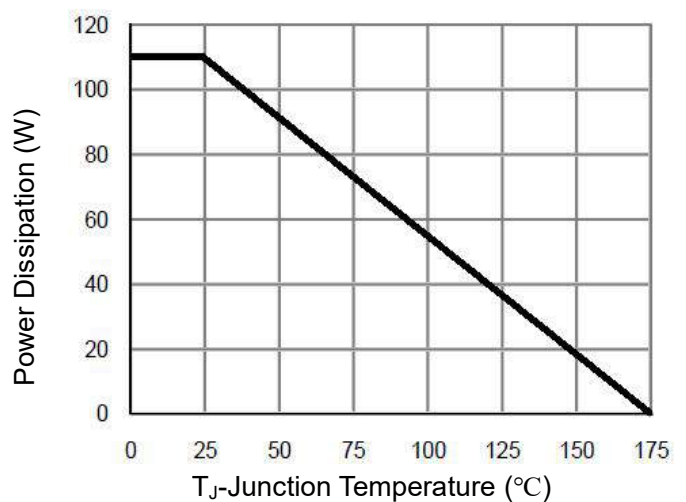


Figure 8 Power De-rating

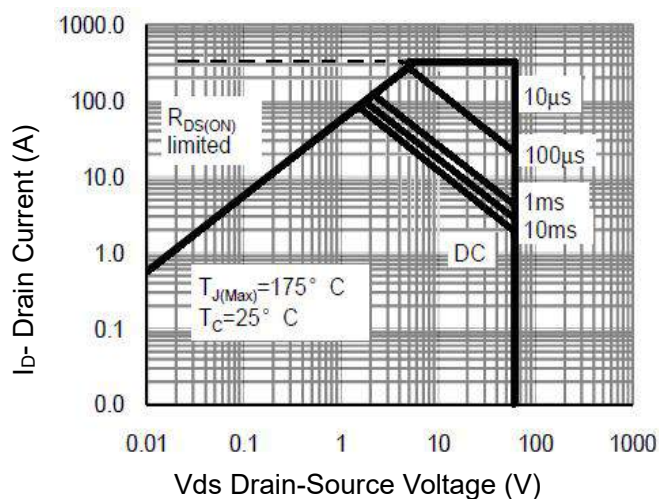


Figure 9 Safe Operation Area

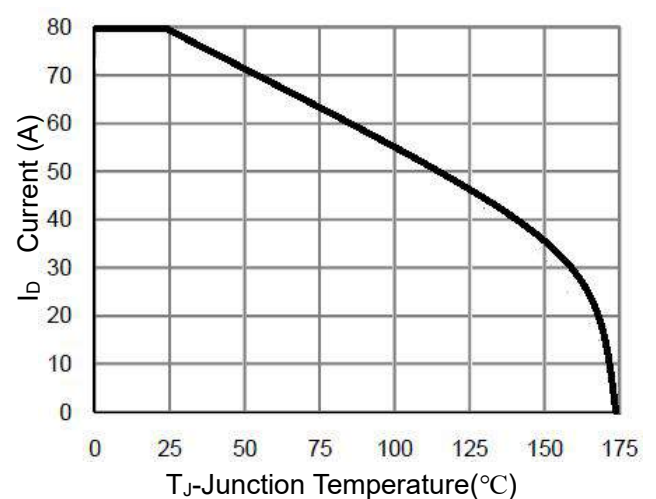


Figure 10 I_D Current- Junction Temperature

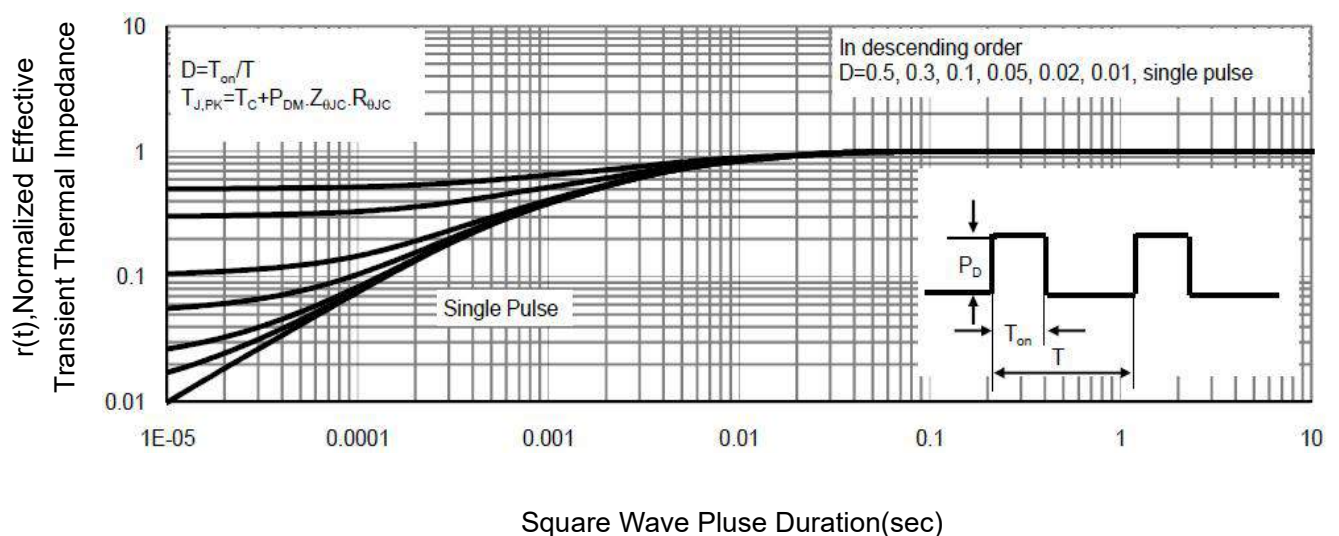
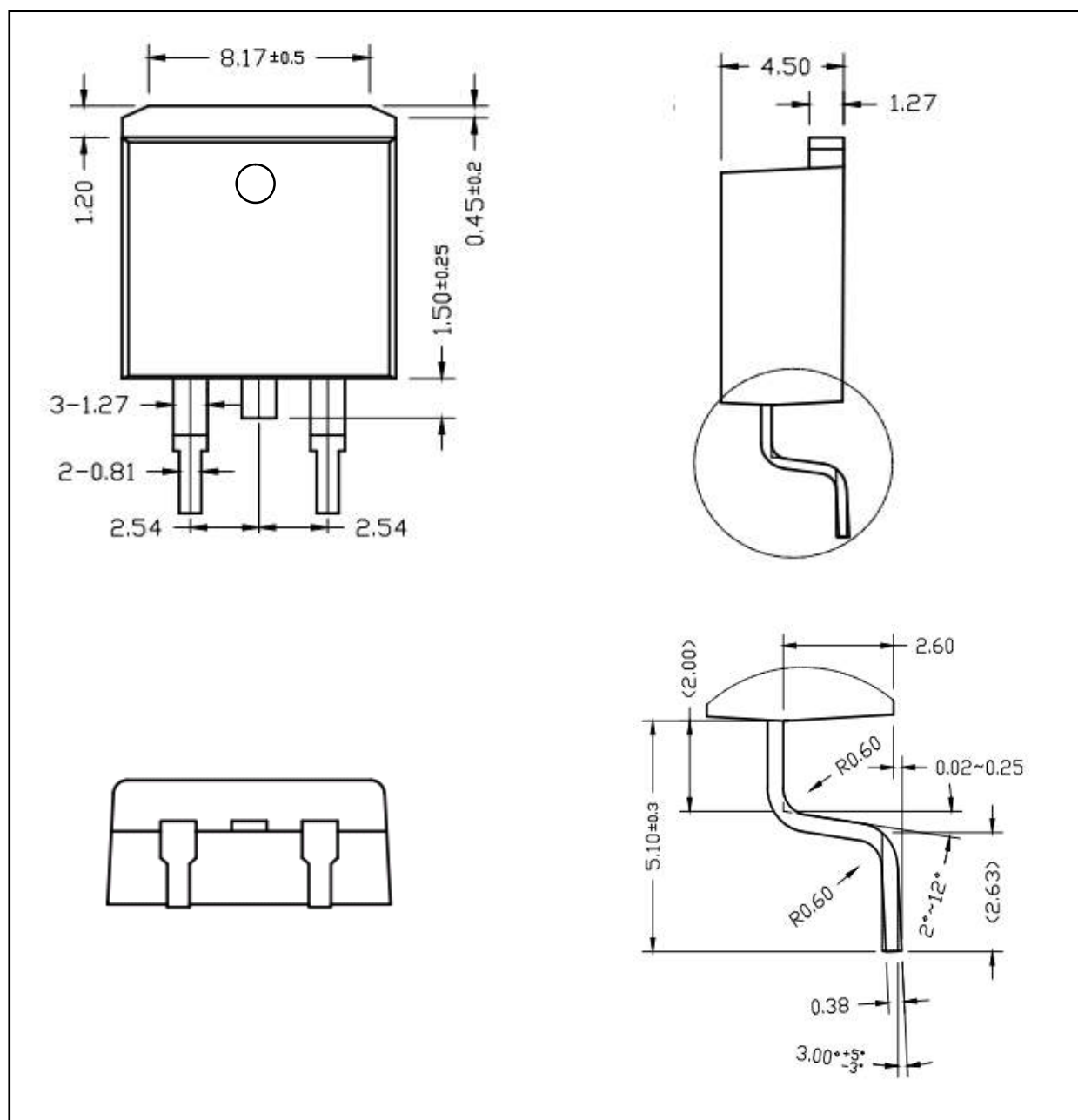


Figure 11 Normalized Maximum Transient Thermal Impedance

■ TO-263-2L PACKAGE OUTLINE DIMENSIONS



■ TO-220-3L PACKAGE OUTLINE DIMENSIONS

