

■ PRODUCT CHARACTERISTICS

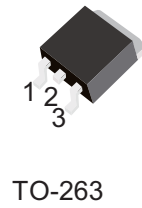
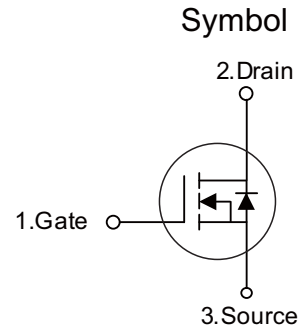
VDSS	60V
$R_{DS(on)Typ}(@V_{GS}=10V)$	6.7mΩ
$R_{DS(on)Typ}(@V_{GS}=4.5V)$	8.2mΩ
ID	90A

■ FEATURES

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

■ APPLICATIONS

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



■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT90N06A	TO-220	50 pieces/Tube
N/A	MOT90N06E	TO-263	800pieces /Reel

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

PARAMETER	SYMBOL	RATING	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	90	A
Drain Current-Continuous($T_C=100^\circ\text{C}$)	I_D	57	A
Pulsed Drain Current	I_{DM}	360	A
Maximum Power Dissipation	P_D	125	W
Thermal resistance,junction-case	$R_{\theta JC}$	1.0	$^\circ\text{C/W}$
Single pulse avalanche energy	E_{AS}	300	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ\text{C}$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	60	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	-	2.5	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
		125 °C	-	-	30	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	-	6.7	8	mΩ
		V _{GS} =4.5V, I _D =20A	-	8.2	9.8	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =5A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1.0MHz	-	6940	-	PF
Output Capacitance	C _{oss}		-	269	-	PF
Reverse Transfer Capacitance	C _{rss}		-	206	-	PF
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V I _D =25A	-	16.5	-	nS
Turn-on Rise Time	t _r		-	170	-	nS
Turn-Off Delay Time	t _{d(off)}		-	464	-	nS
Turn-Off Fall Time	t _f		-	140	-	nS
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V, F=1.0MHz	-	2.95	-	Ω
Gate charge characteristics						
Total Gate Charge	Q _g	I _D =25A, V _{DD} =48V, V _{GS} =10V	-	11.7	-	nC
Gate-Source Charge	Q _{gs}		-	13.1	-	nC
Gate-Drain Charge	Q _{gd}		-	69	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A	-	-	1.2	V
Diode Forward Current	I _S		-	-	90	A
Reverse Recovery Time	t _{rr}	I _F = 25A	-	26.8	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs	-	29	-	nC

■ TYPICAL CHARACTERISTICS

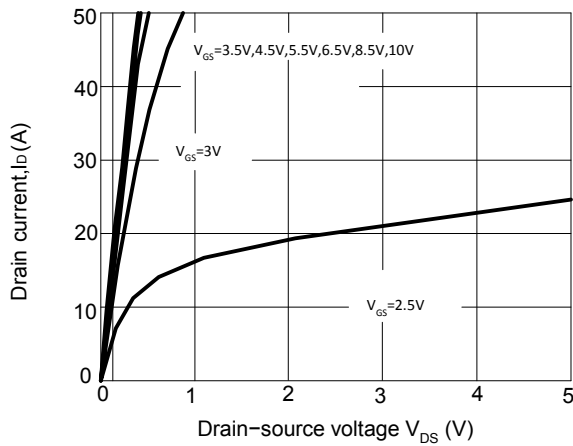


Figure 1. Typ. Output Characteristics

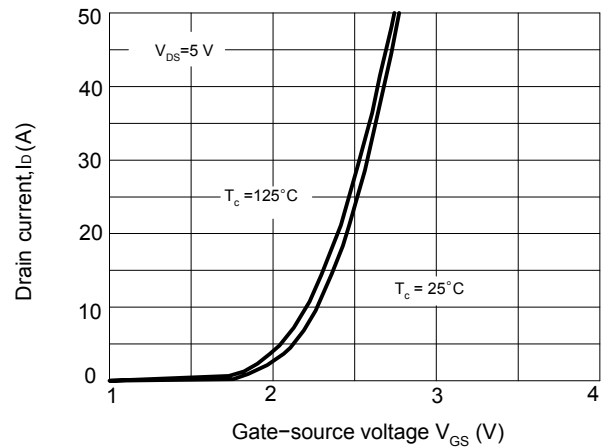


Figure 2. Transfer Characteristics

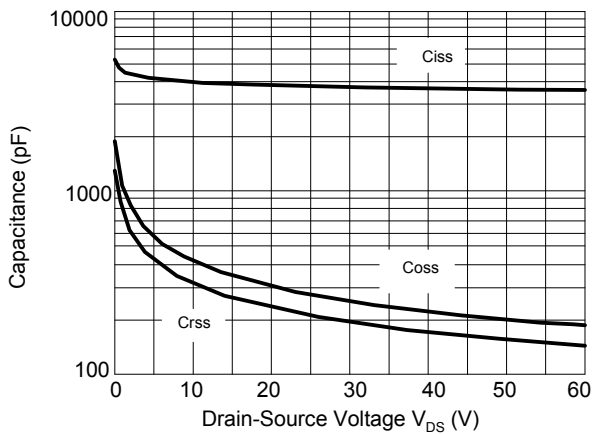


Figure 3. Capacitance Characteristics

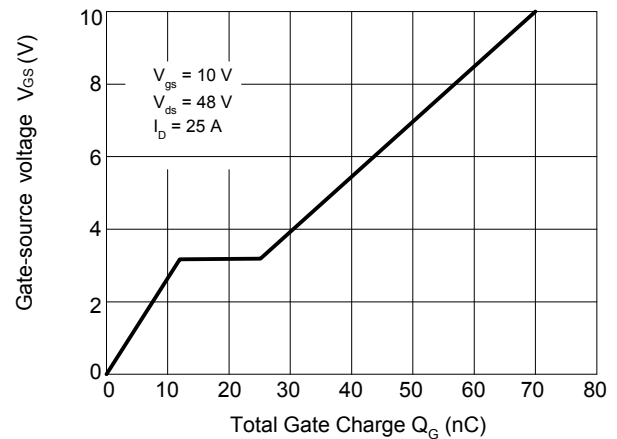


Figure 4. Gate Charge Waveform

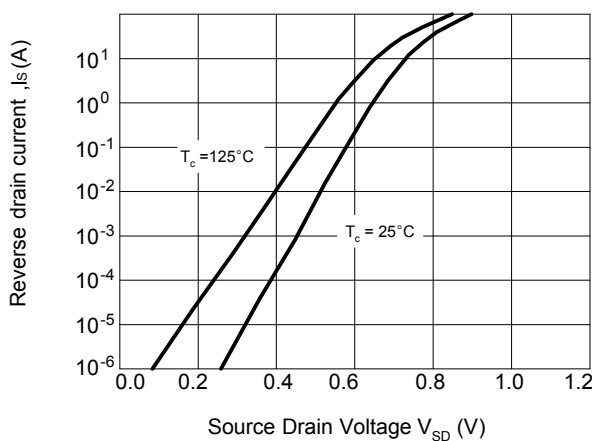


Figure 5. Body-Diode Characteristics

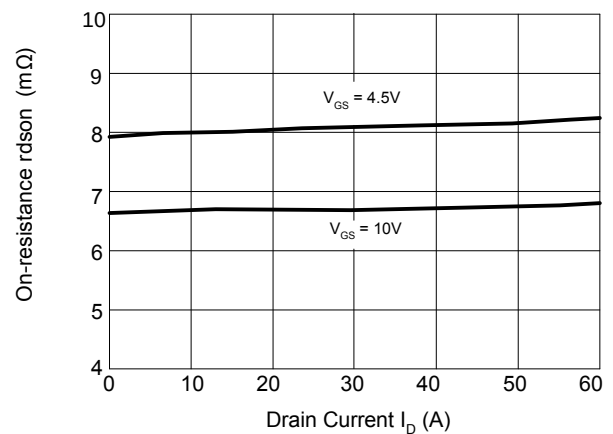


Figure 6. Rdson-Drain Current

■ TYPICAL CHARACTERISTICS(Cont.)

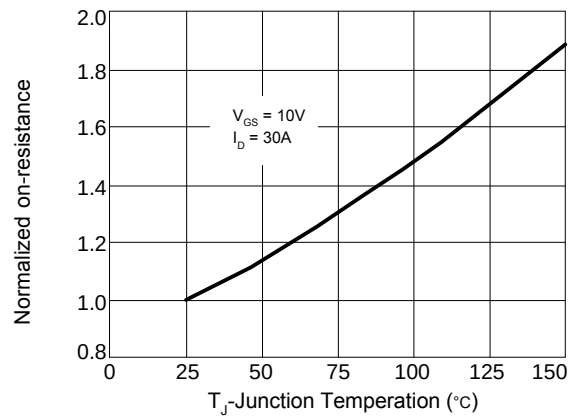


Figure 7. Rdson-Junction Temperature

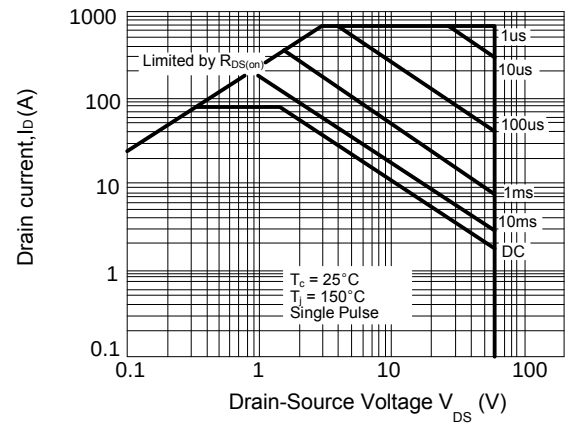
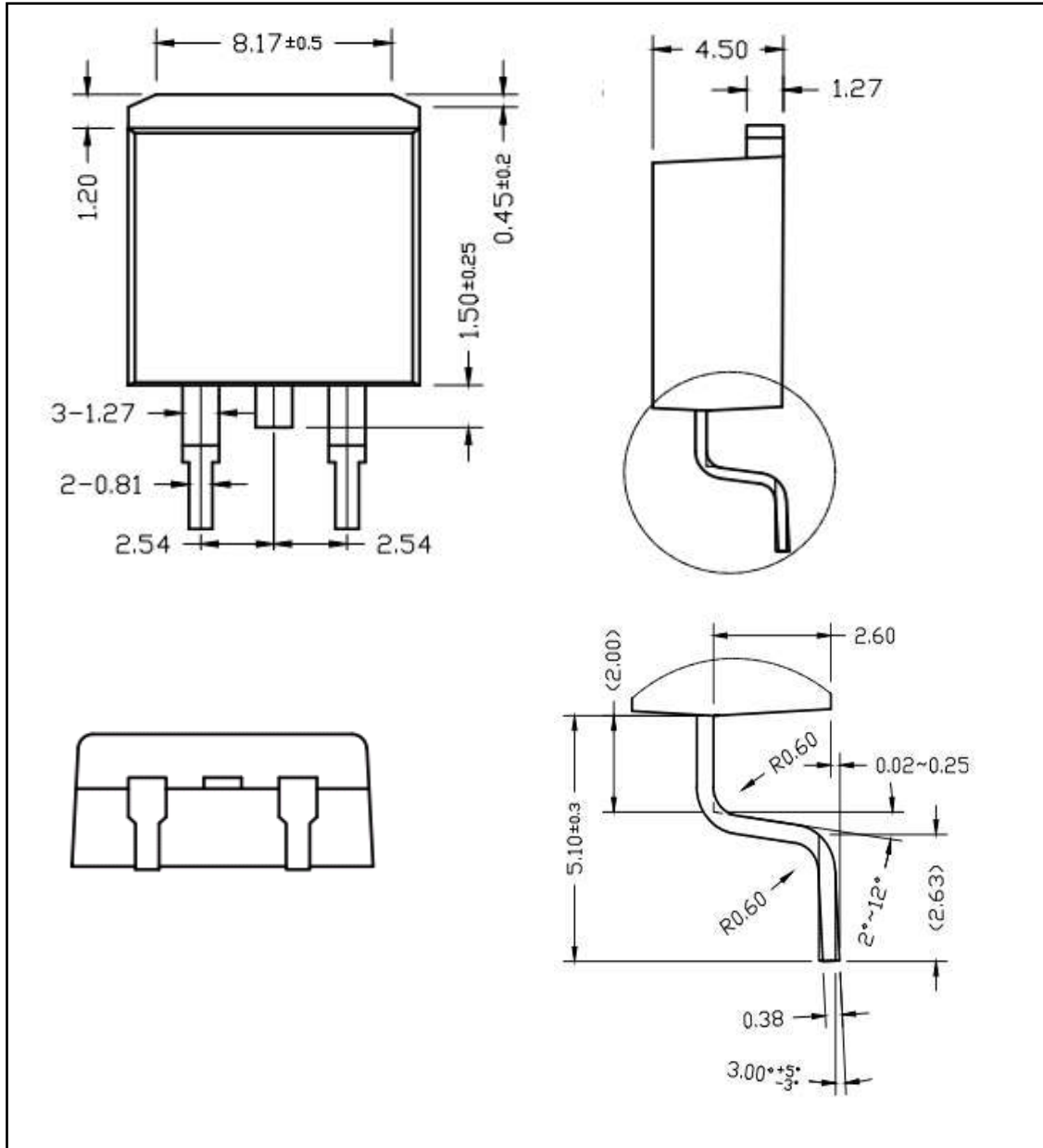


Figure 8. Maximum Safe Operating Area

■ TO-263 PACKAGE OUTLINE DIMENSIONS



■ TO-220 PACKAGE OUTLINE DIMENSIONS

