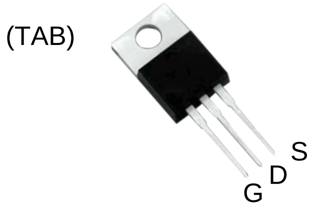
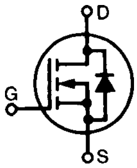
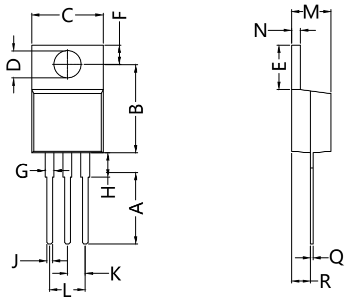
SMOS36N10A2

Power MOSFETs





Dimensions TO-220AB



Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

G=Gate, D=Drain,
S=Source,TAB=Drain

Symbol	Test Conditions	Maximum Ratings	Unit
V_{DSS}	T_J=25°C to 150°C	100	V
V_{DGR}	T_J=25°C to 150°C; R_{GS}=1MΩ	100	
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	
I_{D25}	T_C=25°C	36	A
I_{D100}	T_C=100°C	24	
I_{DM}	T_C=25°C; pulse width limited by T_{JM}	144	A
I_{AR}	T_C=25°C	13	A
E_{AR}	T_C=25°C	33.6	mJ
dv/dt	$I_S \le I_{DM}$; di/dt≤100A/us; $V_{DD} \le V_{DSS}$, $T_J \le$150°C; R_G=2Ω	5	V/ns
P_D	T_C=25°C	125	W
T_J		-55...+150	°C
T_{JM}		150	
T_{stg}		-55...+150	
T_L	1.6mm(0.062 in.) from case for 10s	300	°C
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight	typical	2	g

($T_J=25^{\circ}C$, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
V_{DSS}	$V_{GS}=0V$; $I_D=250uA$	100			V
$V_{GS(th)}$	$V_{DS}=V_{GS}$; $I_D=0.25mA$	2	3	4	V
I_{GSS}	$V_{GS}=\pm20V_{DC}$; $V_{DS}=0$			±100	nA
I_{DSS}	$V_{DS}=0.8V_{DSS}$; $T_J=25^{\circ}C$ $V_{GS}=0V$; $T_J=125^{\circ}C$			1 10	uA uA

($T_J=25^{\circ}C$, unless otherwise specified)

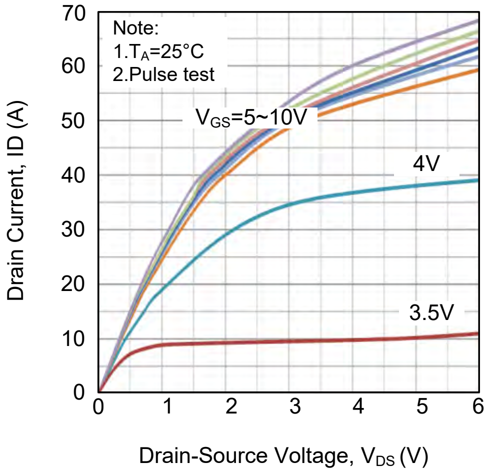
Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
$R_{DS(on)}$	$V_{GS}=10V$; $I_D=0.5I_{D25}$ Pulse test, t≤300us, duty cycle≤2%		0.017	0.022	Ω
g_{ts}	$V_{DS}=10V$; $I_D=0.5I_{D25}$; pulse test	31	35		S
C_{ies} C_{oes} C_{res}	$V_{GS}=0V$; $V_{DS}=25V$; f=1MHz		3000 155 230		pF
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS}=10V$; $V_{DS}=0.5V_{DSS'}$; $I_D=0.5I_{D25}$		73 18 17		nC
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS}=10V$; $V_{DS}=0.5V_{DSS}$; $I_D=0.5I_{D25}$ $R_G=2\Omega$(External)		25 12 70 20	40 30 120 40	ns ns ns ns
R_{thJC}				1.05	K/W
R_{thCS}			0.96		K/W

Source-Drain Diode

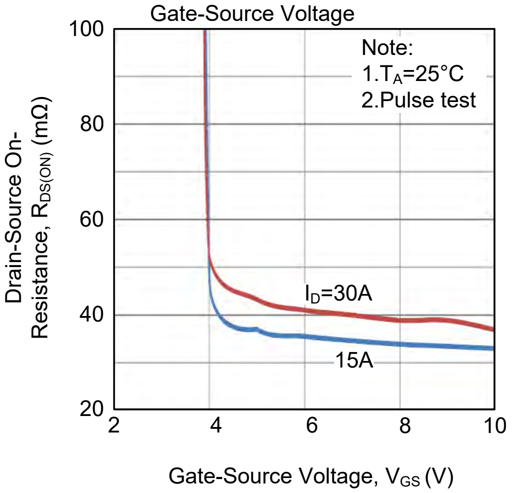
($T_J=25^{\circ}C$, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
I_S	$V_{GS}=0V$			36	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			52	A
V_{SD}	$I_F=I_S$; $V_{GS}=0V$; Pulse test, t≤300us, duty cycle d≤2%			1.4	V
t_{rr}	$I_F=I_S$; -di/dt=100A/us; $V_R=100V$; $T_J=25^{\circ}C$		250		ns
Q_{rr}	$T_J=25^{\circ}C$		1.5		uC
I_{RM}	$T_J=25^{\circ}C$		16.6		A

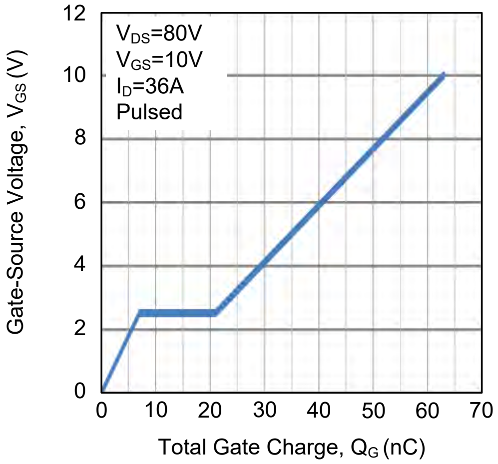
Drain Current vs. Drain-Source Voltage



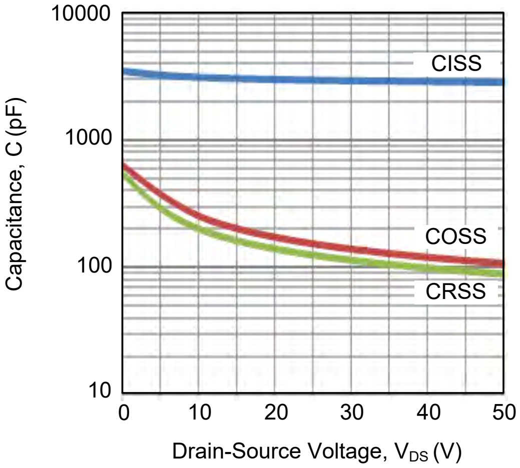
Drain-Source On-Resistance vs. Gate-Source Voltage



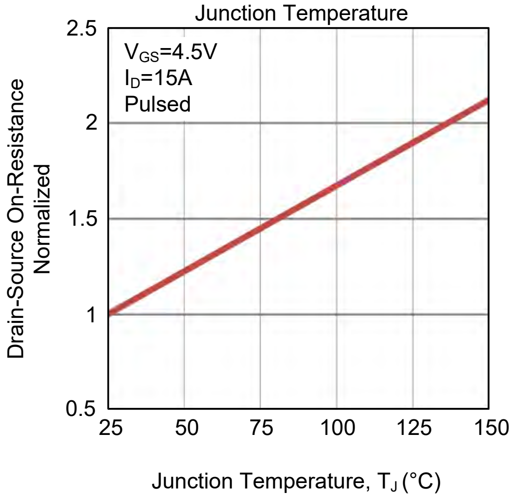
Gate Charge Characteristics



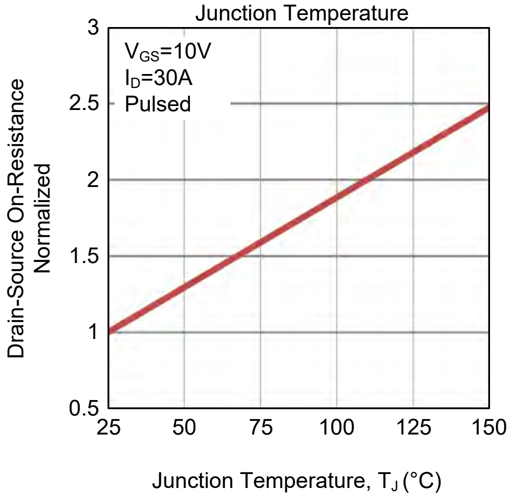
Capacitance Characteristics



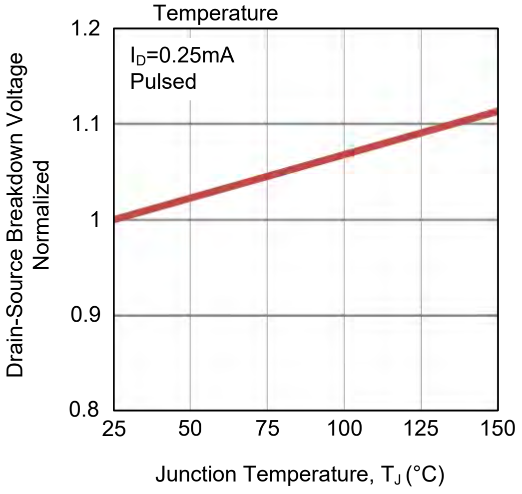
Drain-Source On-Resistance vs. Junction Temperature



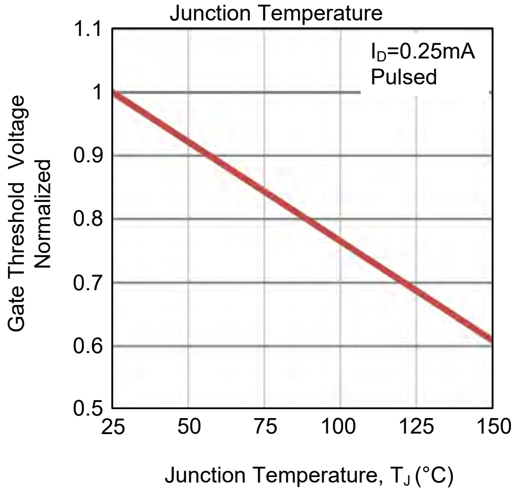
Drain-Source On-Resistance vs. Junction Temperature



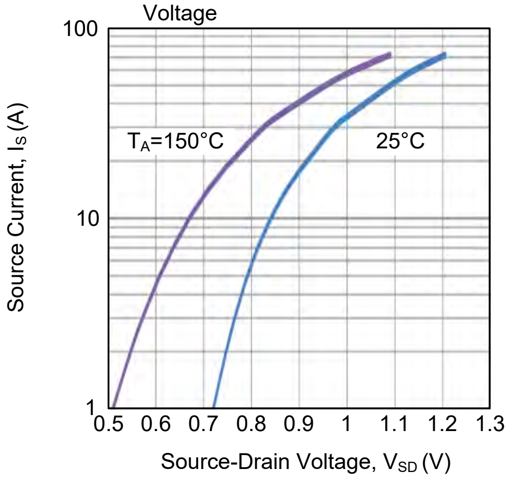
Breakdown Voltage vs. Junction Temperature



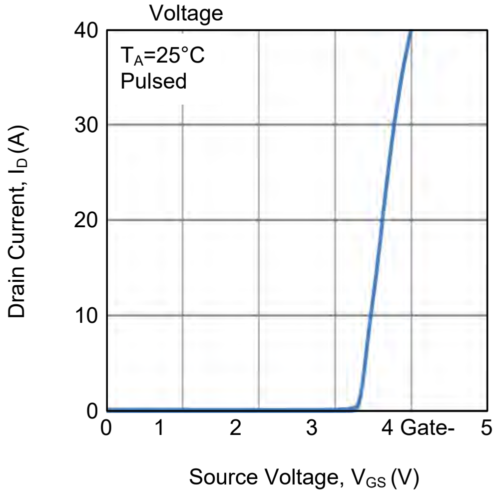
Gate Threshold Voltage vs. Junction Temperature



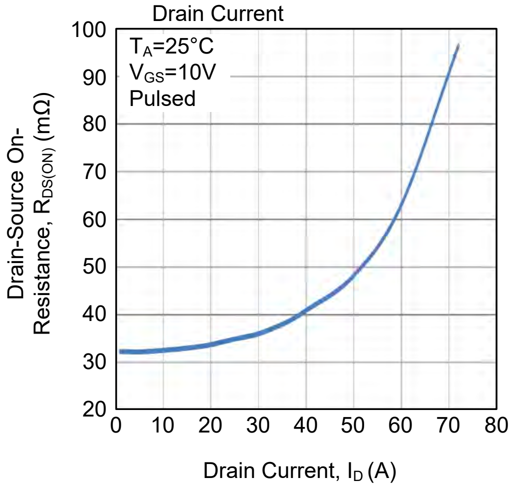
Source Current vs. Source-Drain Voltage



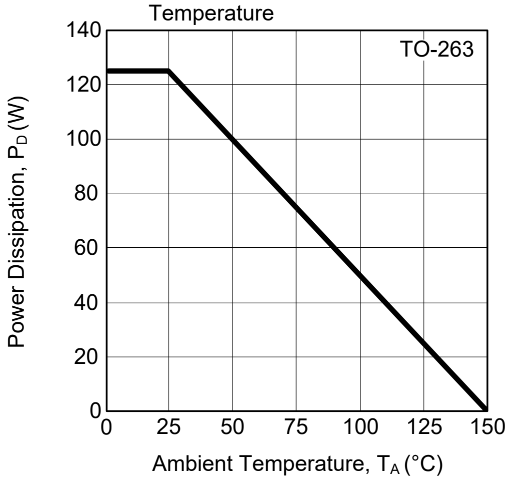
Drain Current vs. Gate-Source Voltage

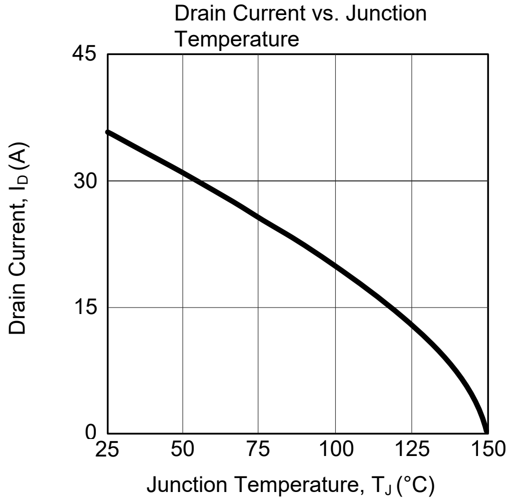


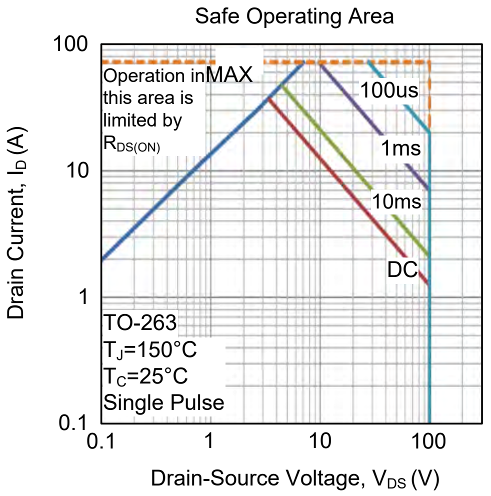
Drain-Source On-Resistance vs. Drain Current

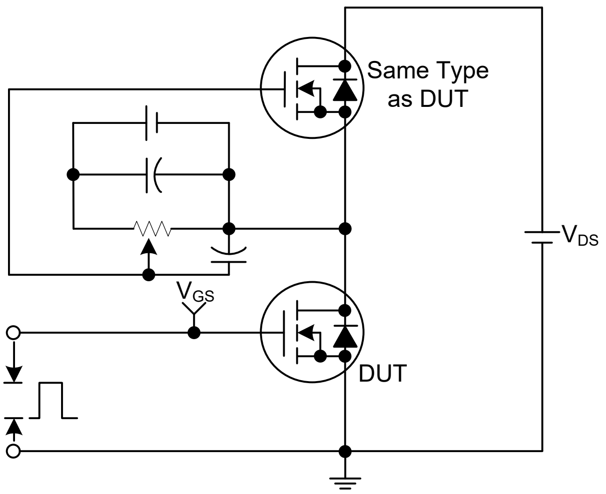


Power Dissipation vs. Ambient Temperature

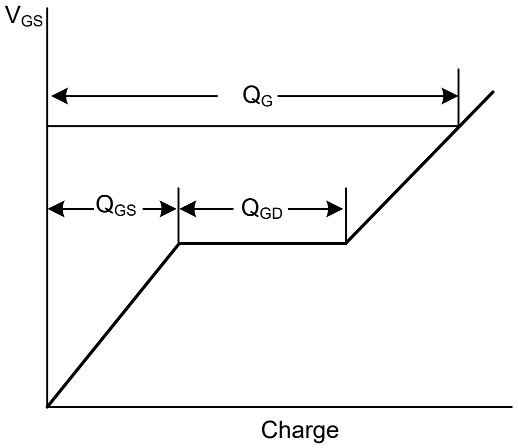




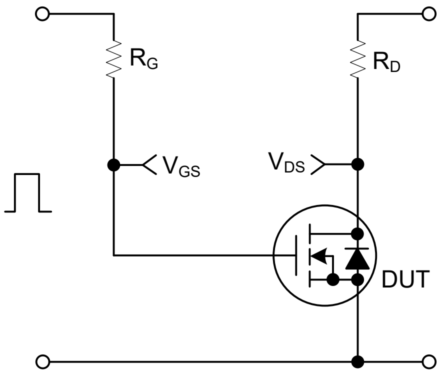




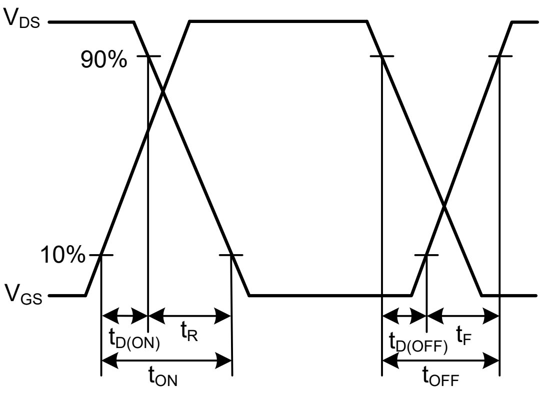
Gate Charge Test Circuit



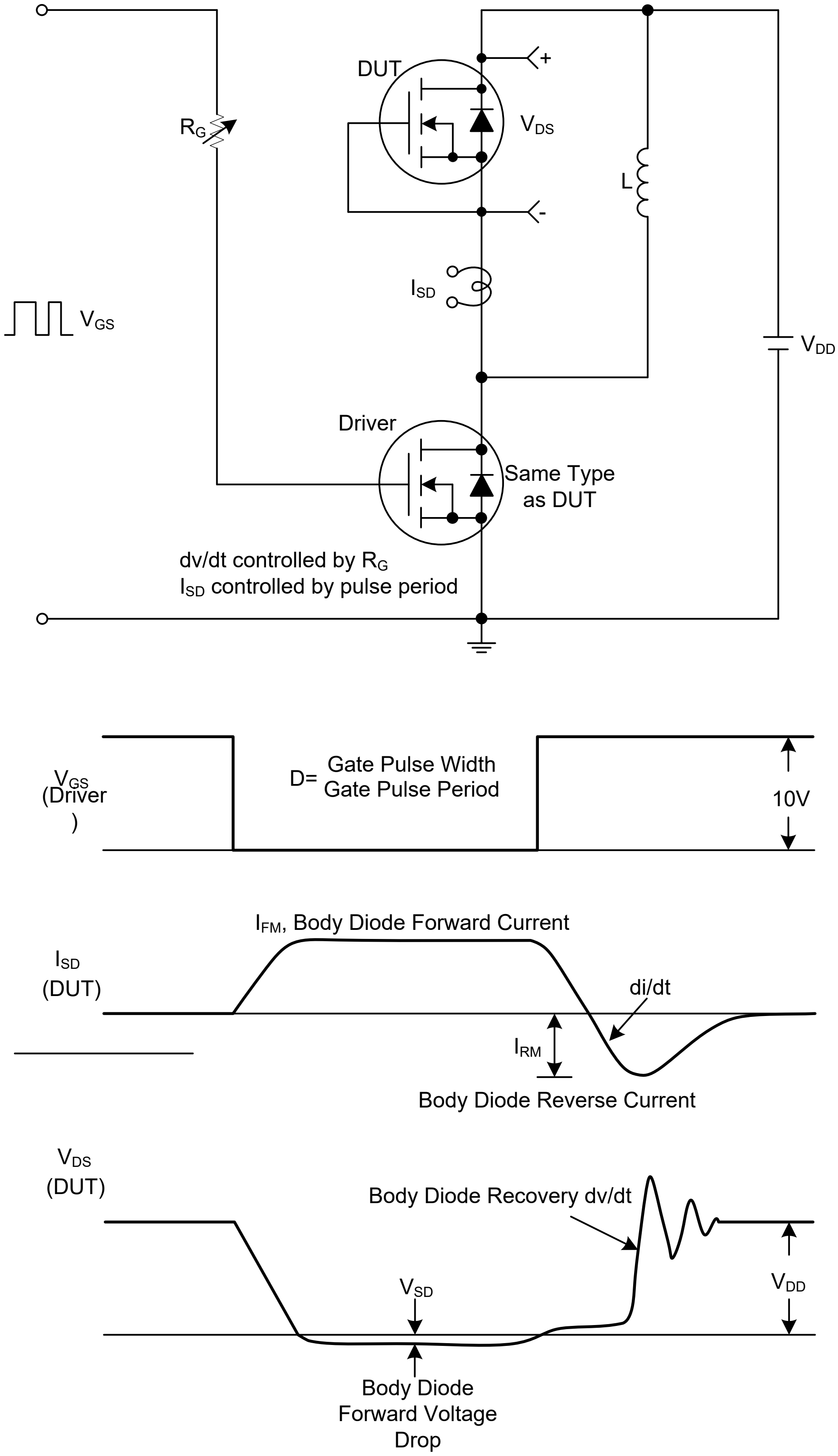
Gate Charge Waveforms



Resistive Switching Test Circuit



Resistive Switching Waveforms



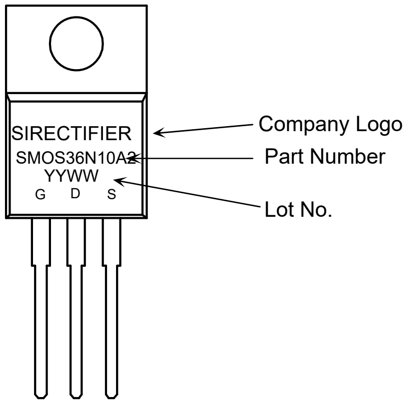
Peak Diode Recovery dv/dt Test Circuit and Waveforms

SMOS36N10A2

Power MOSFETs

Marking

SMOS36N10A2
(TO-220AB)



Ordering Information

Part Number	Package	Shipping	Marking Code
SMOS36N10A2	TO-220AB	50pcs / Tube	SMOS36N10A2