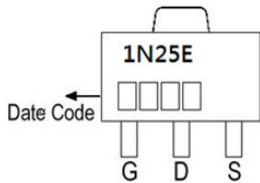


RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

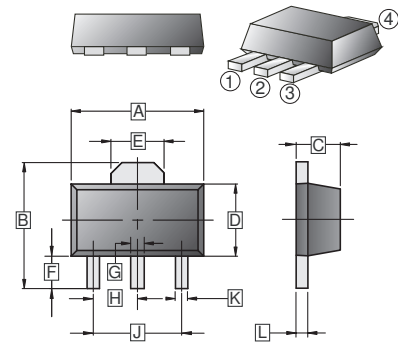
FEATURES

- Low Gate Charge
- Simple Drive Requirement
- Green Device Available
- ESD susceptibility 2KV

MARKING



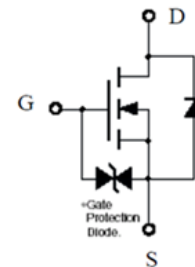
SOT-89



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.30	4.70	G	0.40	0.58
B	3.94	4.40	H	1.50	TYP
C	1.30	1.70	J	3.00	TYP
D	2.25	2.70	K	0.32	0.52
E	1.50	1.85	L	0.35	0.46
F	0.89	1.20			

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-89	3K	7 inch



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	250	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current @ $V_{GS}=10\text{V}$ ¹	I_D	$T_A=25^\circ\text{C}$	1
		$T_A=70^\circ\text{C}$	0.8
Pulsed Drain Current ²	I_{DM}	4	A
Total Power Dissipation ³	P_D	3.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	35	$^\circ\text{C} / \text{W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

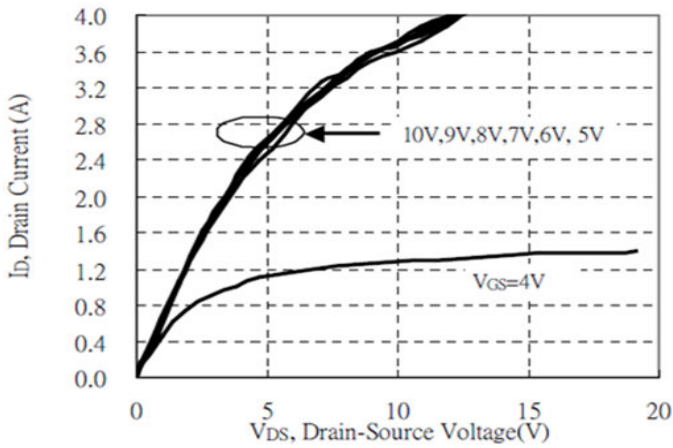
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition	
Static							
Drain-Source Breakdown Voltage	BV_{DSS}	250	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$	
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_J$	-	0.3	-	V/ $^\circ\text{C}$	Reference to 25°C , $I_D=1\text{mA}$	
Gate-Threshold Voltage	$V_{GS(th)}$	1.5	-	3.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	
Forward Transconductance	g_{fs}	-	1.8	-	S	$V_{DS}=15\text{V}, I_D=1\text{A}$	
Gate-Source Leakage Current	I_{GSS}	-	-	± 10	μA	$V_{GS}=\pm 20\text{V}$	
Drain-Source Leakage Current	$T_J=25^\circ\text{C}$	I_{DSS}	-	-	1	μA	$V_{DS}=200\text{V}, V_{GS}=0$
	$T_J=85^\circ\text{C}$		-	-	25		
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	1.78	Ω	$V_{GS}=10\text{V}, I_D=1\text{A}$	
Total Gate Charge ²	Q_g	-	4.47	-	nC	$V_{DS}=200\text{V}$ $V_{GS}=10\text{V}$ $I_D=1\text{A}$	
Gate-Source Charge	Q_{gs}	-	1	-			
Gate-Drain ("Miller") Charge	Q_{gd}	-	1.45	-			
Turn-on Delay Time ²	$T_{d(on)}$	-	11.8	-	nS	$V_{DD}=125\text{V}$ $V_{GS}=10\text{V}$ $R_G=6\Omega$ $I_D=1\text{A}$	
Rise Time	T_r	-	10.7	-			
Turn-off Delay Time	$T_{d(off)}$	-	12.9	-			
Fall Time	T_f	-	6.9	-			
Input Capacitance	C_{iss}	-	214	-	pF	$V_{DS}=25\text{V}$ $V_{GS}=0\text{V}$ $f=1\text{MHz}$	
Output Capacitance	C_{oss}	-	16.2	-			
Reverse Transfer Capacitance	C_{rss}	-	8	-			
Source-Drain Diode							
Diode Forward Voltage ²	V_{SD}	-	0.8	1.2	V	$I_S=1\text{A}, V_{GS}=0, T_J=25^\circ\text{C}$	
Reverse Recovery Time	T_{rr}	-	78	-	nS	$I_F=1\text{A}, dI/dt=100\text{A}/\mu\text{s}, T_J=25^\circ\text{C}$	
Reverse Recovery Charge	Q_{rr}	-	325	-	nC		

Notes:

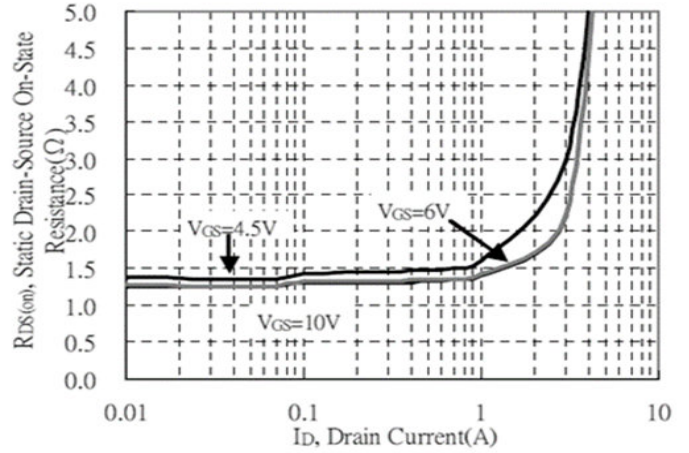
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, $t \leq 5\text{sec}$, $62.5^\circ\text{C}/\text{W}$ at steady state.
2. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. The power dissipation is limited by 150°C junction temperature.
4. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

CHARACTERISTIC CURVES

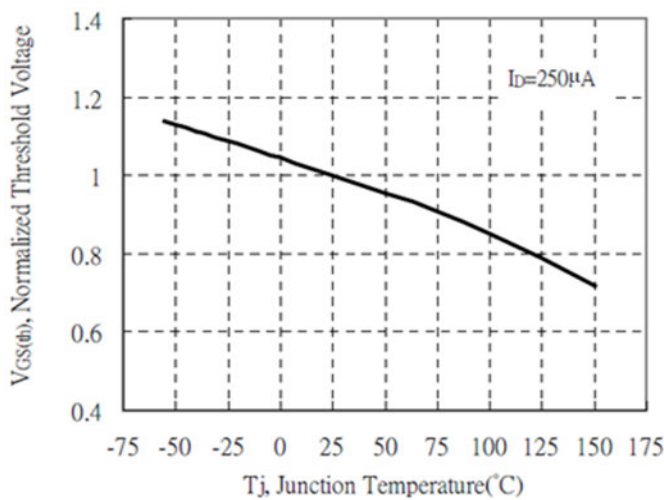
Typical Output Characteristics



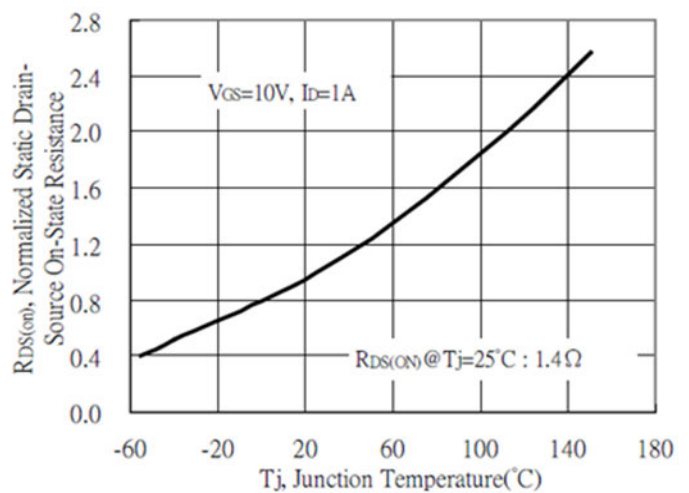
Static Drain-Source On-State resistance vs Drain Current



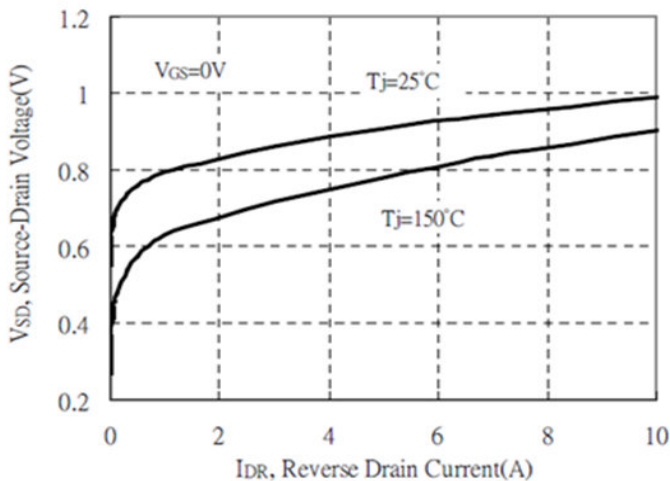
Threshold Voltage vs Junction Temperature



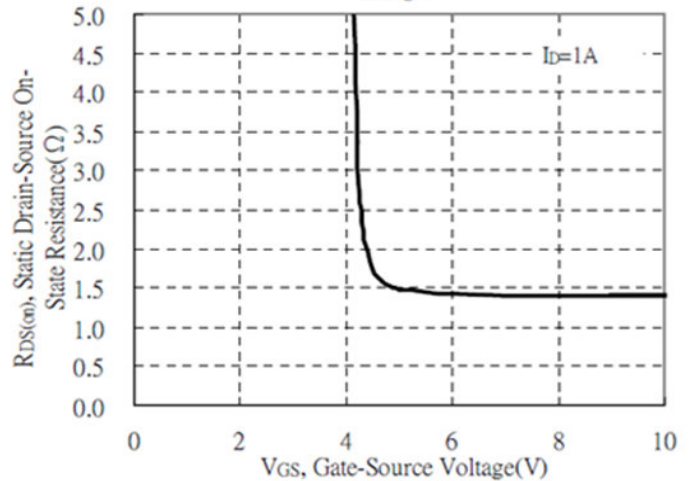
Drain-Source On-State Resistance vs Junction Temperature



Reverse Drain Current vs Source-Drain Voltage

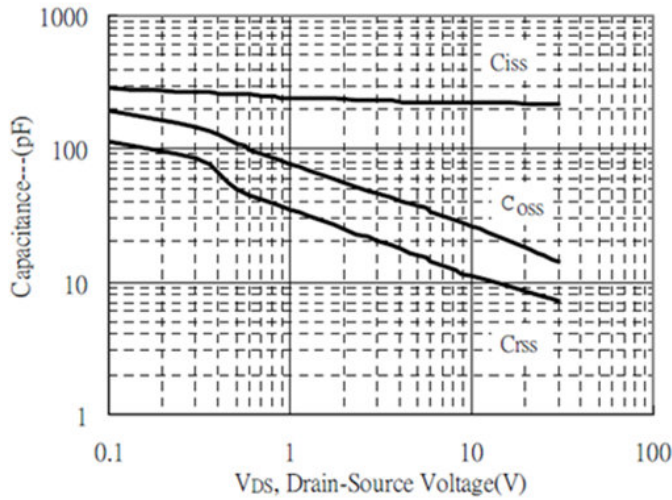


Static Drain-Source On-State Resistance vs Gate-Source Voltage

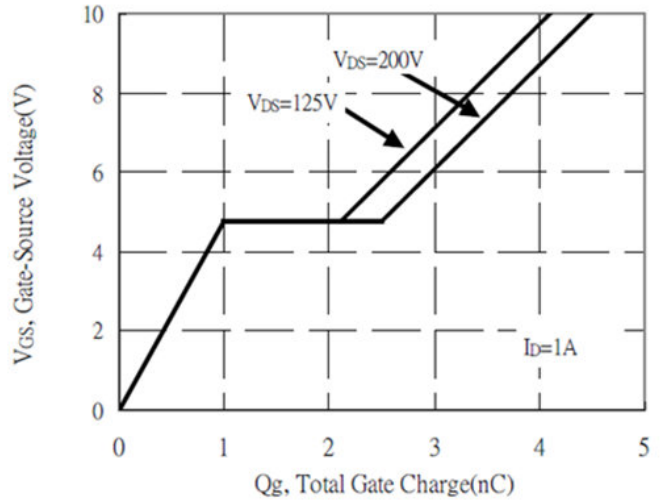


CHARACTERISTIC CURVES

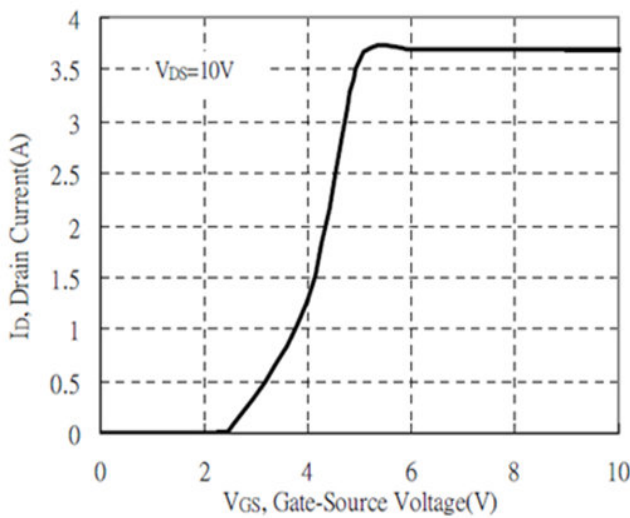
Capacitance vs Drain-to-Source Voltage



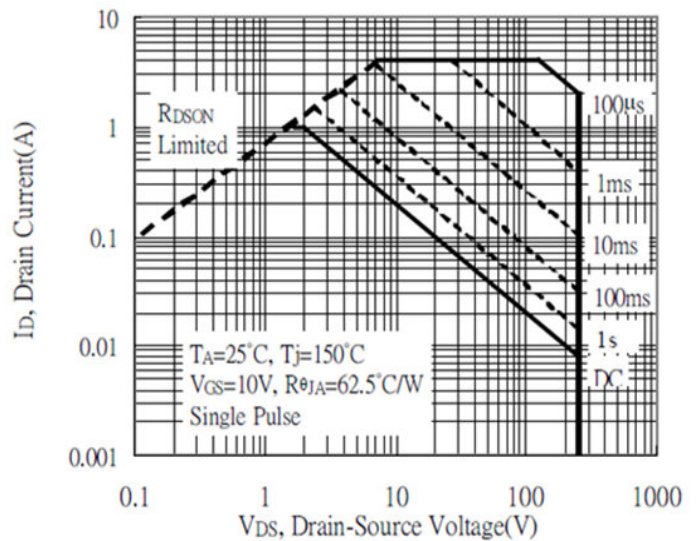
Gate Charge Characteristics



Typical Transfer Characteristics



Maximum Safe Operating Area



Transient Thermal Response Curves

