

GSM2789EX7F

Dual P-Channel Enhancement MOSFET

Product Description

GSM2789EX7F, P-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer, and low in-line power loss are needed in commercial industrial surface mount applications.

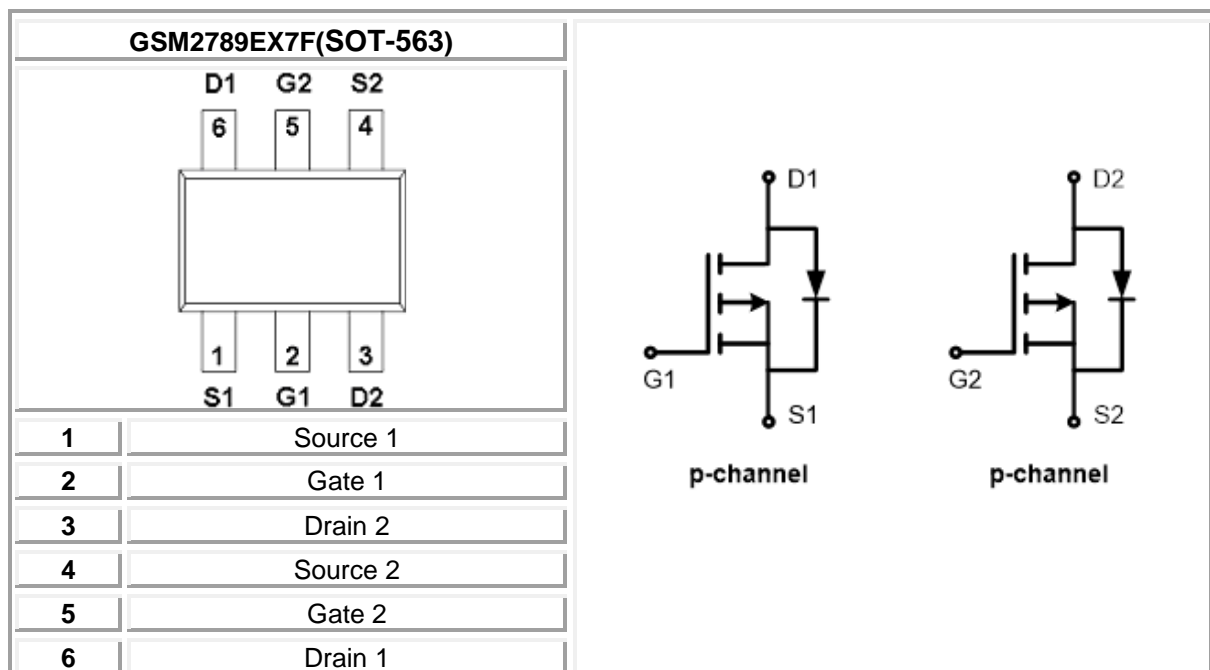
Features

- -20V/-0.5A, $R_{DS(ON)}=900m\Omega@V_{GS}=-4.5V$
- -20V/-0.2A, $R_{DS(ON)}=1100m\Omega@V_{GS}=-2.5V$
- -20V/-0.1A, $R_{DS(ON)}=1800m\Omega@V_{GS}=-1.8V$
- Low-Voltage Operation
- High-Speed Circuits
- ESD Protection
- SOT-563 package design

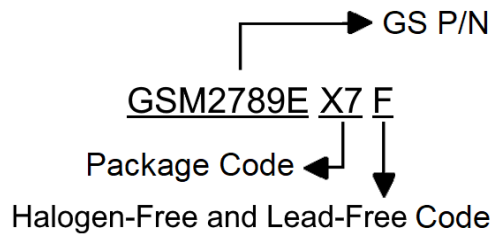
Applications

- Drivers : Relays, Solenoids, Lamps, Hammers
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Smart Phones, Pagers

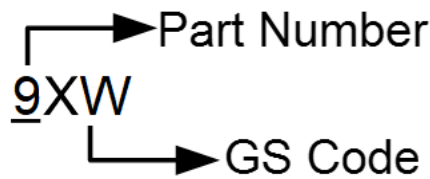
Packages & Pin Assignments



Ordering Information



Marking Information



Part Number	Package	Part Marking
GSM2789EX7F	SOT-563	9XW

Absolute Maximum Ratings

(T_A=25°C unless otherwise noted)

Symbol	Parameter	Typical	Unit
V _{DSS}	Drain-Source Voltage	-20	V
V _{GSS}	Gate-Source Voltage	±8	V
I _D	Continuous Drain Current (T _J =150°C)	T _A =25°C	-0.43
		T _A =70°C	-0.35
I _{DM}	Pulsed Drain Current	-1	A
P _D	Power Dissipation	T _A =25°C	0.25
		T _A =70°C	0.16
R _{θJA}	Thermal Resistance Junction to ambient	500	°C/W
T _J	Operating Junction Temperature Range	-55 to +150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

Electrical Characteristics

(T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-20			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.3		-1.0	
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±8V			±10	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			-1	uA
		V _{DS} =-16V, V _{GS} =0V T _J =85°C			-30	
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-4.5V, I _D =-0.5A		600	900	mΩ
		V _{GS} =-2.5V, I _D =-0.2A		800	1100	
		V _{GS} =-1.8V, I _D =-0.1A		1025	1800	
		V _{GS} =-1.5V, I _D =-0.1A		1255	2600	
g _{FS}	Forward Transconductance	V _{DS} =-10V, I _D =-0.3A		0.76		S
V _{SD}	Diode Forward Voltage	I _S =-0.5A, V _{GS} =0V			-1.3	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.25A		0.58		nC
Q _{gs}	Gate-Source Charge			0.1		
Q _{gd}	Gate-Drain Charge			0.13		
C _{iss}	Input Capacitance	V _{DS} =-16V, V _{GS} =0V f=1MHz		59.8		pF
C _{oss}	Output Capacitance			12.1		
C _{rss}	Reverse Transfer Capacitance			6.4		
t _{d(on)}	Turn-On Time	V _{DD} =-10V, R _L =47Ω, I _D =-0.2A V _{GEN} =-4.5V, R _G =10Ω		5.1		ns
t _r				8.1		
t _{d(off)}	Turn-Off Time			28.4		
t _f				20.7		

Typical Performance Characteristics

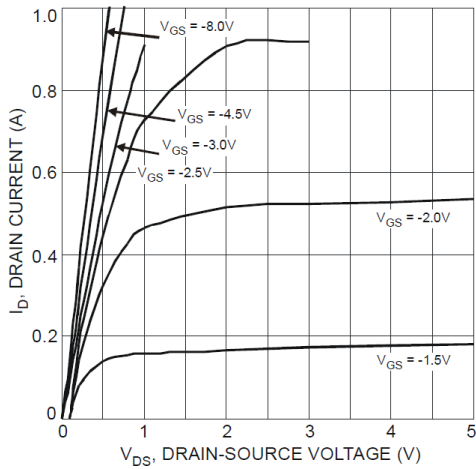


Fig. 1 Typical Output Characteristics

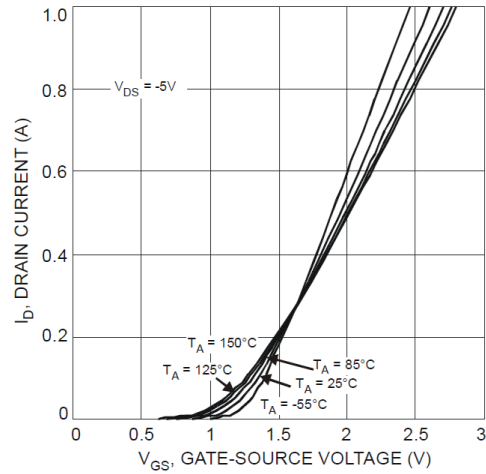


Fig. 2 Typical Transfer Characteristics

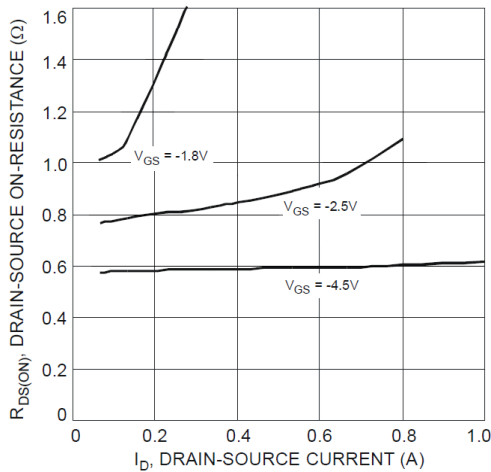


Fig. 3 Typical On-Resistance vs. I_D and V_{GS}

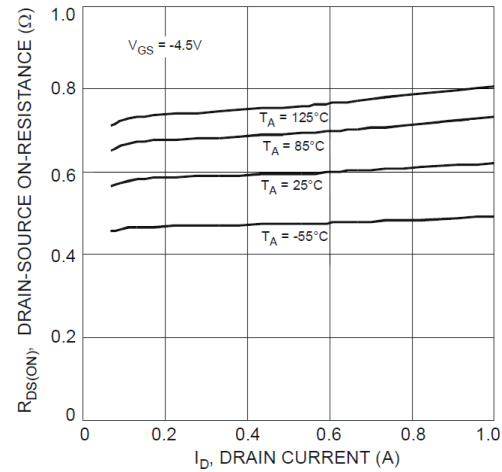


Fig. 4 Typical Drain-Source On-Resistance vs. I_D and T_J

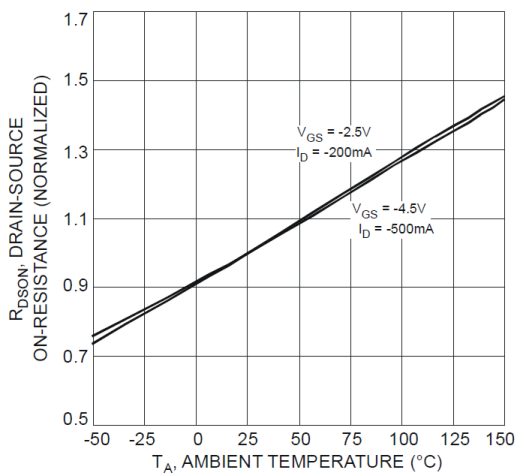


Fig. 5 On-Resistance Variation with T_J

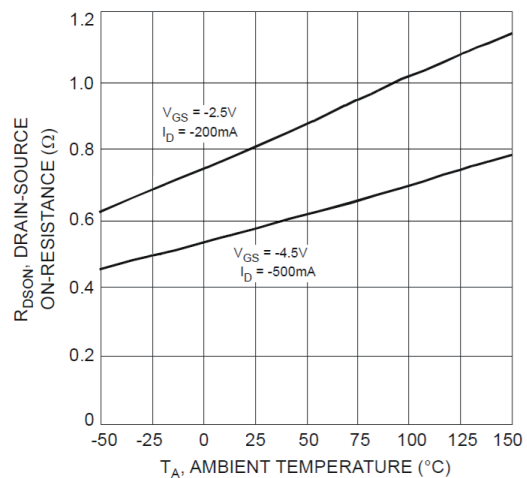


Fig. 6 On-Resistance Variation with T_J

Typical Performance Characteristics (continue)

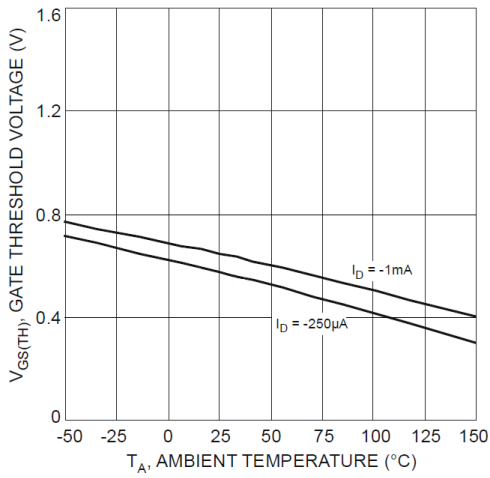


Fig. 7 Gate Threshold Variation vs. T_A

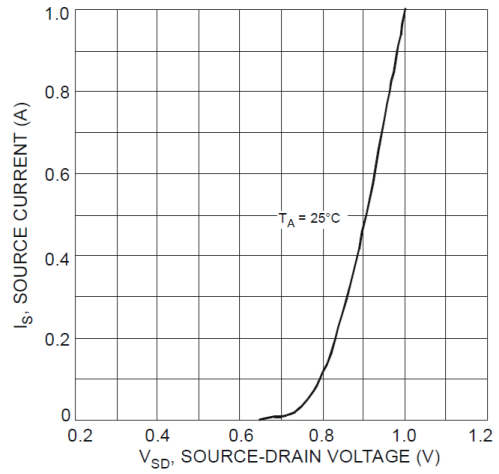


Fig. 8 Diode Forward Voltage vs. Current

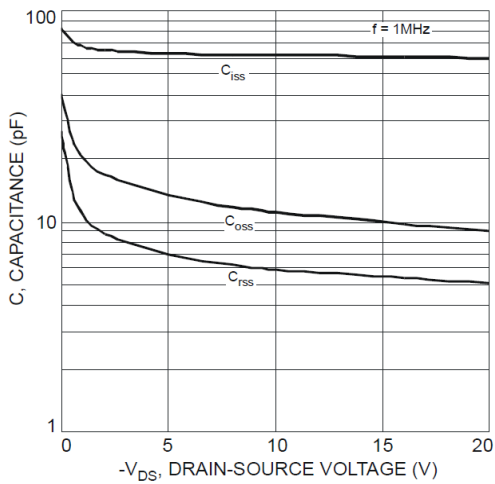


Fig. 9 Typical Capacitance

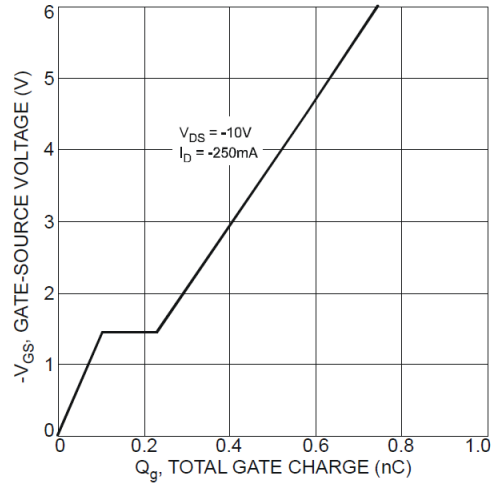


Fig. 10 Gate Charge Waveform

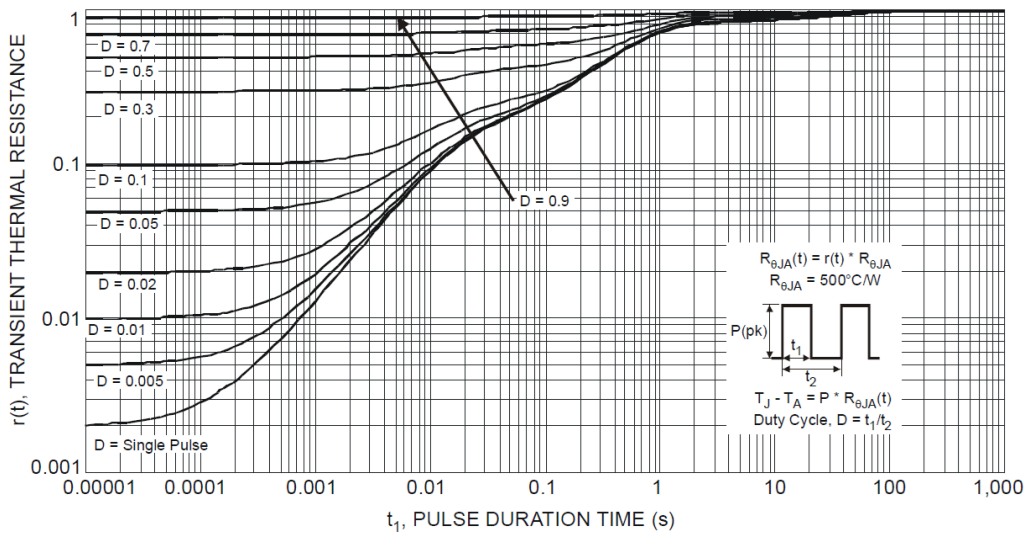
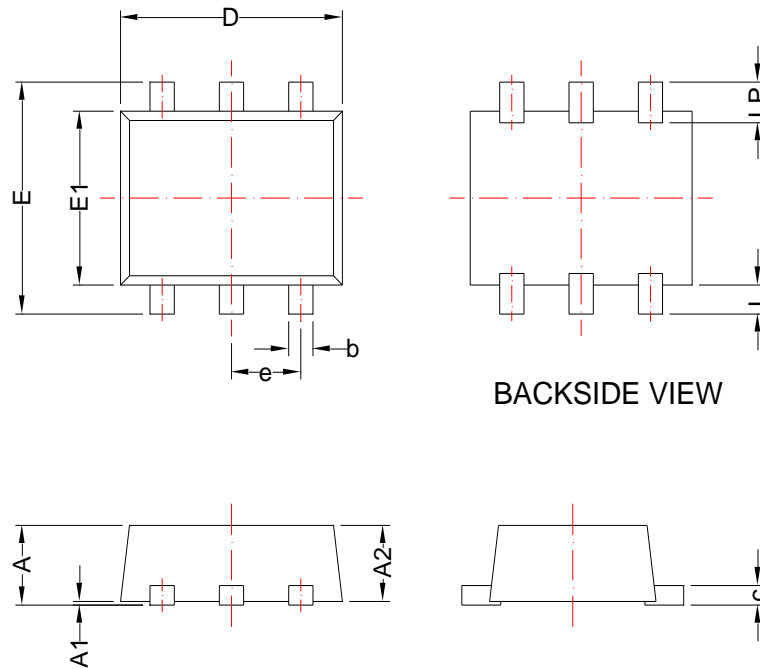


Fig. 11 Transient Thermal Response

Package Dimension

SOT-563



DIMENSION D AND E1 DO NOT INCLUDE MOLD FLASH, TIE BAR BURRS, GATE BURRS, AND INTERLEAD FLASH, NOT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.45	0.65	0.018	0.026
A1	0.00	0.10	0.000	0.004
A2	0.45	0.60	0.018	0.024
b	0.15	0.30	0.006	0.012
c	0.07	0.20	0.003	0.008
D	1.50	1.70	0.059	0.067
E	1.50	1.70	0.059	0.067
E1	1.10	1.30	0.043	0.051
e	0.50 BSC		0.020 BSC	
L	0.10	0.30	0.004	0.012
LP	0.16	0.4	0.006	0.016





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