



Power MOSFETS

DATASHEET

LM20E80TGF6A

Dual P-Channel
Enhancement Mode MOSFET

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Quality Management Systems

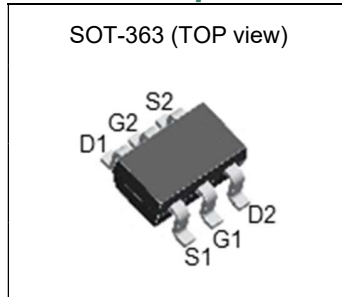
ISO 9001:2015 Certificate

LM20E80TGF6A

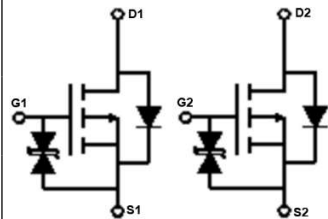


Dual P-Channel Enhancement Mode MOSFET

Pin Description



Symbol



Ordering Information

Symbol	Dual P-Channel	Unit
V_{DSS}	-20	V
$R_{DS(ON)-Max}$	590	mΩ
I_D	-0.53	A

Feature

- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- ESD Protection

Applications

- Power Management in DC/DC Converters
- Load Switch

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM20E80TGF6A	SOT-363	Tape & Reel	3000 / Tape & Reel	2□□□

Note : □□□□ = Lot Code

Absolute Maximum Ratings ($T_J=25^{\circ}\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Dual P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		± 12	
T_J	Maximum Junction Temperature		150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-55 to 150	$^{\circ}\text{C}$
I_S	Diode Continuous Forward Current	$T_A=25^{\circ}\text{C}$	-0.23	A
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^{\circ}\text{C}$	-0.9	A
$I_D^{②}$	Continuous Drain Current	$T_A=25^{\circ}\text{C}$	-0.53	A
		$T_A=70^{\circ}\text{C}$	-0.42	
P_D	Maximum Power Dissipation	$T_A=25^{\circ}\text{C}$	0.25	W
		$T_A=70^{\circ}\text{C}$	0.16	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	Steady State	500	$^{\circ}\text{C/W}$

Note ① : Max. current is limited by Bonding wire

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150°C

Note ③ : Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

LM20E80TGF6A



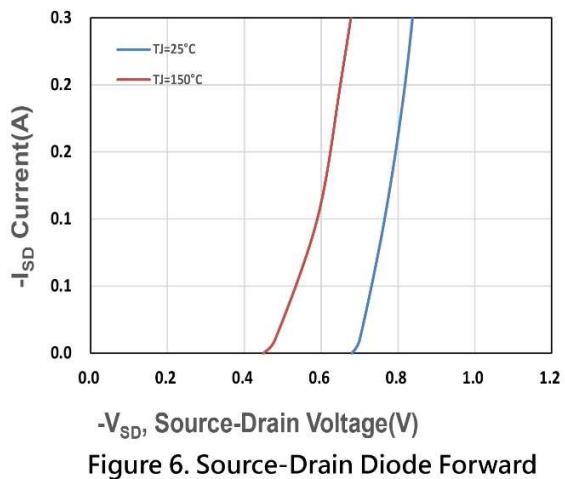
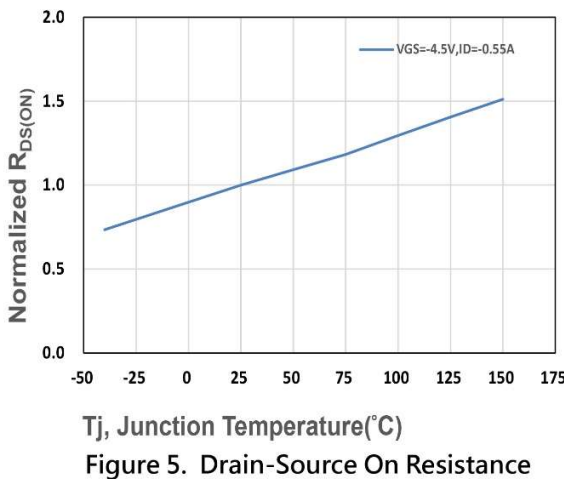
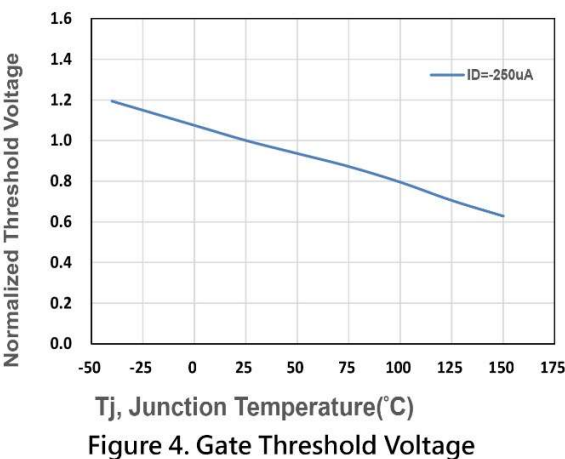
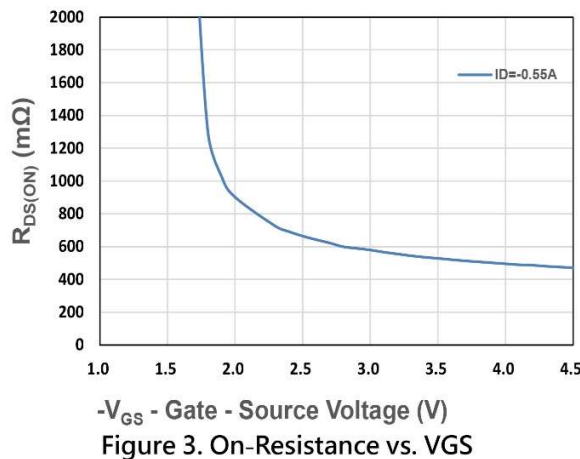
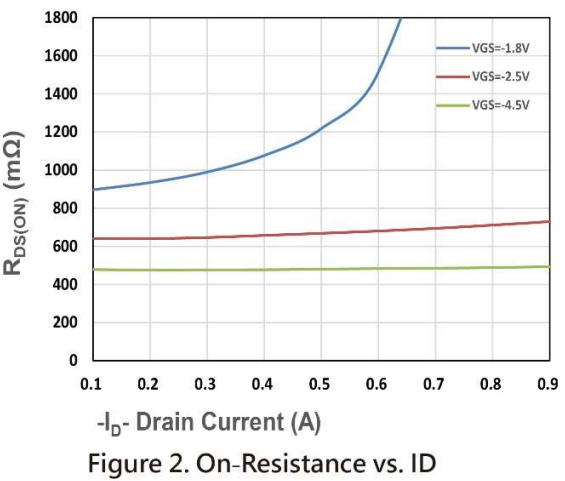
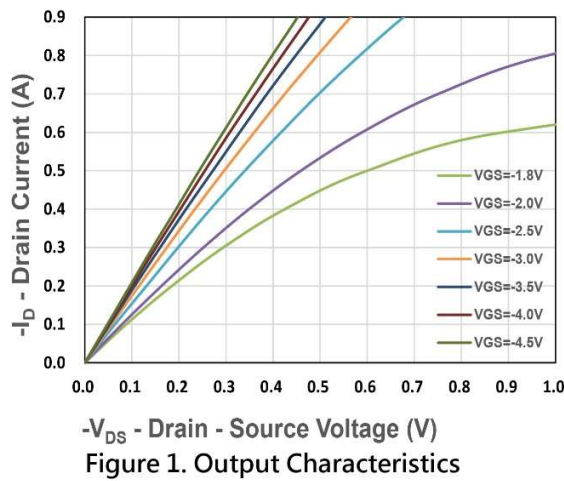
Dual P-Channel Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

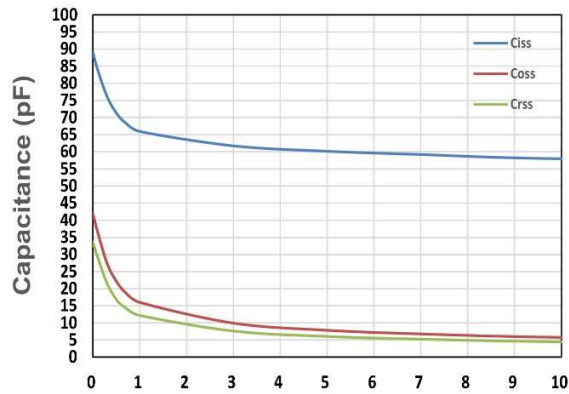
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250uA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V	-	-	-1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250uA	-0.5	-0.75	-1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ④	Drain-Source On-state Resistance	V _{GS} =-4.5V, I _{DS} =-0.6A	-	490	590	mΩ
		V _{GS} =-2.5V, I _{DS} =-0.5A	-	610	830	
		V _{GS} =-1.8V, I _{DS} =-0.4A		1000	1500	
gfs	Forward Transconductance	V _{DS} =-3V, I _{DS} =-0.3A	-	1	-	S
Dynamic Characteristics ⑥						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, Freq.=1MHz	-	58	-	pF
C _{oss}	Output Capacitance		-	5.7	-	
C _{rss}	Reverse Transfer Capacitance		-	4.4	-	
td(ON)	Turn-on Delay Time	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-1A, R _{GEN} =3Ω	-	0.4	-	nS
tr	Turn-on Rise Time		-	0.03	-	
td(OFF)	Turn-off Delay Time		-	0.04	-	
tf	Turn-off Fall Time		-	1.1	-	
Qg	Total Gate Charge	V _{GS} =-2.5V, V _{DS} =-10V I _D =-0.55A	-	0.6	-	nC
Qg	Total Gate Charge	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-0.55A	-	1.1	-	
Qgs	Gate-Source Charge		-	0.17	-	
Qgd	Gate-Drain Charge		-	0.18	-	
Source-Drain Characteristics						
VSD④	Diode Forward Voltage	I _{SD} =-0.3A, V _{GS} =0V	-	-0.8	-1.1	V
trr	Reverse Recovery Time	I _F =-1A, V _R =0V	-	9.2	-	nS
Qrr	Reverse Recovery Charge	dI _F /dt=100A/μs	-	0.81	-	nC

Note ④ : Pulse test (pulse width 300us, duty cycle 2%).

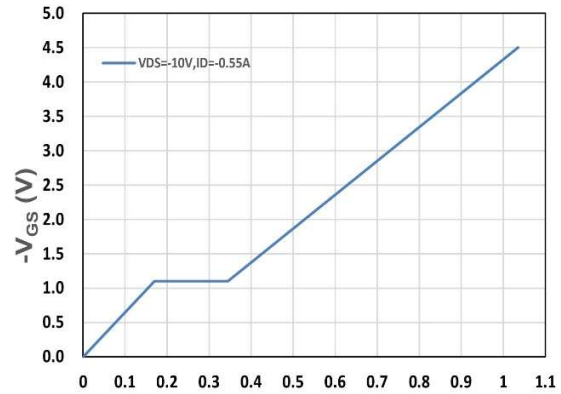
Note ⑤ : Guaranteed by design, not subject to production testing

P-Channel Typical Characteristics

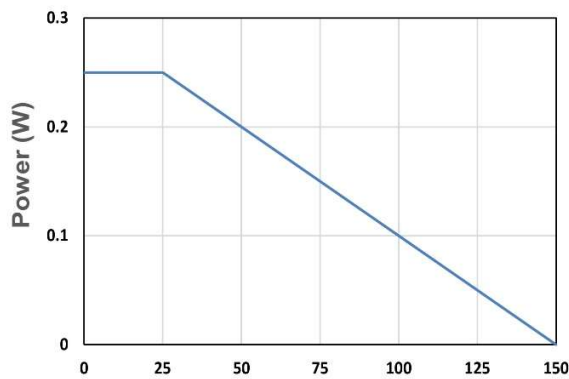




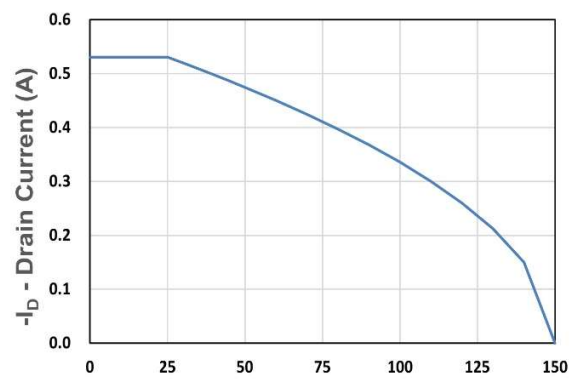
$-V_{DS}$ - Drain - Source Voltage (V)
Figure 7. Capacitance



Q_g , Total Gate Charge (nC)
Figure 8. Gate Charge Characteristics



T_A - Ambient Temperature ($^{\circ}C$)
Figure 9. Power Dissipation



T_A - Ambient Temperature ($^{\circ}C$)
Figure 10. Drain Current

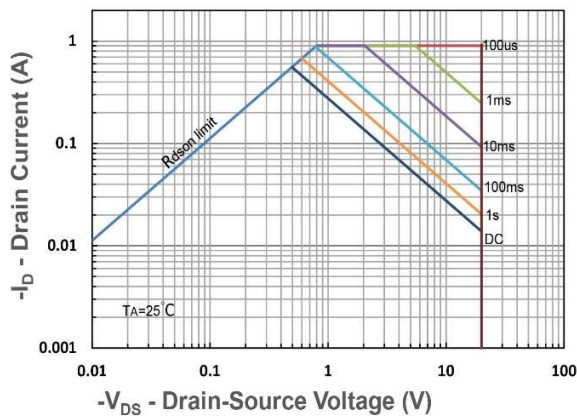


Figure 11. Safe Operating Area

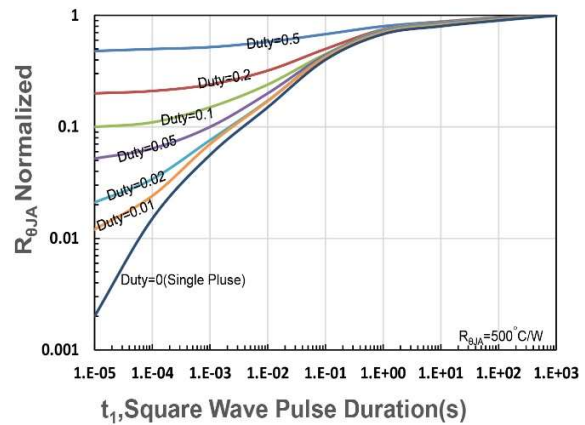


Figure 12. $R_{\theta JA}$ Transient Thermal Impedance